R. Freedman and Son

ALBANY COUNTY

GREEN ISLAND, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: 401033

Prepared for:
Eastern Metal Recycling, LLC
143 Harding Avenue
Bellmawr, New Jersey 08031

Prepared by:
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AUGUST 2021

Leader

CERTIFICATION STATEMENT

I PETER VON SCHONDORF certify that I am currently a NYS Qualified Environmental Professional as 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).

Peter von Schondorf

_____________________ [QEP]

8/13/2021 DATE

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

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

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 ("SMP"):

Site Identification: Site No. 401033, R. Freedman and Son, 143 Cannon Street, Green Island, New York

Institutional Controls:	
	A1. The controlled property may be used for: Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv).
	A2. All engineering controls must be operated and maintained as specified in a manner defined in the SMP.
	A3. All engineering controls must be inspected at a frequency and in a manner defined in the SMP.
	A4. The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Albany County Department of Health to render it safe for use as a drinking water or for industrial purposes, and the user must notify and obtain written approval to do so from the NYSDEC.
	A5. Groundwater and other environmental or public health monitoring must be performed as defined in the SMP.
	A6. Data and information pertinent to the Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP.
	A7. All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP.
	A8. Inspections to assess the performance and effectiveness of the remedy must be performed as defined in the SMP.
	A9. Operation, maintenance, monitoring, inspection and reporting of any mechanical or physical components of the remedy shall be performed as designed in the SMP.

Site Identification:	Site No. 401033, R. Freedman and Son, 143 Cannon Street, Green Island, New York	
	A10. 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 in the Environmental Easement.	
Engineering Controls:	1. A 1-foot cover system covering the flat surface on the Site or hard surfaces (buildings, pavement or concrete).	
	2. The berm surfaces must maintain a vegetative cover.	
Inspections:		Frequency
1. Cover inspection		Annually
Monitoring:		
1. Groundwater monitoring to assess the performance and the effectiveness of the remedy		Annually
2. Monitoring for vapor intrusion for any buildings on the site, as may be required by Institutional and Engineering Control Plan		As needed
Maintenance:		
1. Cover system maintenance		As needed
2. Maintenance of vegetative cover		As needed
Reporting:		
1. Periodic Review Report		Annually

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

1.0 INTRODUCTION

1.1 General

This Site Management Plan ("SMP") is a required element of the remedial program for the R. Freedman and Son Property located in Green Island, New York (hereinafter referred to as the "Site"). See Figure 1. The Site is currently in the New York State ("NYS") Inactive Hazardous Waste Disposal Site Remedial Program, designated Site No. 401033 which is administered by New York State Department of Environmental Conservation ("NYSDEC").

Eastern Metal Recycling, LLC entered into an Order on Consent on April 1, 2015 with the NYSDEC to remediate the Site. A figure showing the Site location and boundaries of this Site is provided as Figure 2. The boundaries of the Site are more fully described in the metes and bounds Site description that is part of the Environmental Easement provided in Appendix 1.

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

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

It is important to note that:

- This SMP provides 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 Order on Consent (Index #A7-0834-14-07; Site #401033) 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 2 of this SMP.

This SMP was prepared by Leader Professional Services, Inc, on behalf of Eastern Metal Recycling LLC, in accordance with the requirements of the NYSDEC's "Technical Guidance for Site Investigation and Remediation" ("DER-10"), dated May 3, 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs and/or ECs that are required by the Environmental Easement for the Site.

1.2 Revisions

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

1.3 Notifications

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

1. 60-day advance notice of any proposed changes in Site use that are required under the terms of the Order on Consent, 6 NYCRR Part 375 and/or Environmental Conservation Law.
2. 7-day advance notice of any field activity associated with the remedial program.
3. 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan. If the ground-intrusive activity qualifies as a change of use as defined in 6 NYCRR Part 375, the above mentioned 60-day advance notice is also required.
4. 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.
5. Notice within 48-hours of any non-routine maintenance activities.
6. Verbal notice by noon of the following day of any emergency, such as: 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.
7. 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 change in the responsibility for implementing this SMP will include the following notifications:

8. 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 Order on Consent and all approved work plans and reports, including this SMP.
9. 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 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 2.

Table 1: Notifications

Name	**Contact Information**	**Notifications**
Kyle Forster, NYSDEC Project Manager	518-402-8644 kyle.forster@dec.ny.gov	All notifications
Sarah Quandt, NYSDEC Section Chief	518-402-9116 sarah.quandt@dec.ny.gov	All notifications
Kelly Lewandowski, NYSDEC Site Control	518-402-9553 kelly.lewandowski@dec.ny.gov	Notifications 1 and 8
Stephanie Selmer, NYSDOH Project Manager	518-402-7860 Stephanie.selmer@health.ny.gov	Notifications 4,6 and 7

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

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The Site is located in the Village of Green Island, Albany County, New York. The Site is approximately 11.8-acres in area bounded by a commercial property to the north, Tibbits Avenue to the south, Cannon Street to the east and industrial property to the west (see Figures 1 and 2). The Site is identified as Section 21.13 Block 1 and Lot 2 on the Village of Green Island Tax Map (see Figure 3). The boundaries of the Site are more fully described in Appendix 1 – Environmental Easement. The owner(s) of the Site parcel(s) at the time of issuance of this SMP is:

Eastern Metal Recycling, LLC, 143 Harding Avenue, Bellmawr, New Jersey

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: several buildings including an office trailer, a sheet metal warehouse and a sheet metal truck maintenance garage. There are also several unused/abandoned concrete structures which were formerly used to hold control and power equipment to operate several pieces of equipment that have since been removed. There are concrete pads and asphalt driveways accessing various parts of the property. The former operations area of the property is covered with concrete or a crushed stone cap. The Site is zoned for industrial use and is currently used by Eastern Metal Recycling as a temporary truck and roll off container storage yard and a truck maintenance garage. The Site is not occupied on a full-time basis.

The properties adjoining the Site include industrial/commercial and residential properties. The properties immediately south of the Site are residential properties; the property immediately north of the Site is an active commercial property; the property immediately east of the Site is a former industrial property; and the property to the west of the Site is an active industrial property.

2.2.2 Geology

The Site geology is a combination of fill and natural soils consisting of silt and sand. The fill found on the Site is an accumulation of over 100-years of industrial activity which was mainly used as a railroad yard and repair shops. The topmost 1-foot of fill is a layer of gravel brought to the Site as a working surface for the former scrap yard. Below the gravel, the fill is composed of cinders, ash, coal residue, metal scrap and demolition debris. Below the fill at depths ranging from 2 to 8-feet below the ground surface, natural sequences of silt, sand and gravel are found. These natural materials are suspected to be thickening to the east toward the Hudson River. Bedrock was not confirmed below the Site, but in several soil borings conditions were encountered where either the sampler or hollow stem augers could not be advanced and bedrock was suspected. Figure 4 provides a location map for the various test pits, soil borings and monitoring wells completed during the RI. Site boring and test pit logs are provided in Appendix 3.

2.2.3 Hydrogeology

The groundwater at the Site is found in the overburden under water table hydrostatic conditions at a depth ranging from 4.8 to 13.5 feet below the ground surface. The hydraulic conductivity of the groundwater zone has not been determined. Groundwater flow direction is to the southeast, but there is a small component flowing to the northeast. Figure 5 provides a depiction of the groundwater surface contours and Table 2 provides records of the depth and elevation of the groundwater from the on the Site monitoring wells. Groundwater monitoring well construction logs are provided in Appendix 4. There are no known supply wells in the area.

2.3 Investigation and Remedial History

The Site has been used as a scrap metal recycling facility since at least 1951 when historical Sanborn Fire Insurance maps (Resources, 1951) identify the Site and possibly the nearby areas as the John J. Ryan & Sons, Incorporated ("Ryan & Sons"). Prior to this estimated date, the Site and the area to the north, south and east were being used as railroad yards and railroad car manufacturing and repair shops, see Figures 6, 7 and 8. The earliest map records for the Site and the surrounding area is 1903. From 1903 to 1951, the Site and the area on the east side of Cannon Street was used for industrial purposes by the Delaware and Hudson Canal Companies and Railroad Car Shops ("D&H"). In 1951 D&H moved their operation leaving the Site area to be operated by Ryan & Sons. To the east the Standard Block Company moved into the former D&H property as did the Symansky Brothers Scarp Iron Company. To the west, the Marshall-Eclipse Division of Bendix Aviation Company ("Bendix") is shown as having a manufacturing operation on the north and south side of Tibbits Avenue. The Slade Asbestos Company (acquired by Bendix in 1933) moved to Green Island in 1929 (Rensselaer Polytechnic Institute, 1962).

In 2010-2011 EMR retained Penn Environmental & Remediation ("Penn E&R") to conduct a Phase I Environmental Site Assessment ("Phase I") of the Site (Penn Environmental & Remediation, Inc, January 4, 2011). During the completion of the Phase I, deed information and Sanborn maps were reviewed. The deed information found that R. Freedman & Son, Inc. ("Freedman") purchased the property from the D&H in 1973. The ownership timeline of the Site by D&H is not clear, but it appears they may have acquired the Site from the Rensselaer and Saratoga Railroad Company, which purchased the property in 1880 from Sarah Tibbits. EMR purchased Freedman in 2011.

There have been six investigations completed at the Site: four of the investigations were completed by the former owner R. Freedman and Son and the fifth and sixth by Eastern Metal Recycling LLC. Prior to the purchase of the Site, Eastern Metal Recycling conducted an environmental due diligence assessment and then in 2016 Eastern Metal Recycling conducted a RI. The six investigations are:

- March 1990 Report on Remediation for an Inactive Hazardous Waste Disposal Site, Clough Harbor and Associates. (This report was not reviewed by Leader for this SMP).
- December 13, 1996 Report Summary of Findings of PCB Soil Investigation, Alpha Geoscience. The investigation entailed the sampling of eight soil borings drilled through and around a concrete slab located in the northeast corner of the Site. Grab

samples were collected from the upper 1-foot of soil and a second sample was collected as a composite of the interval from two to six feet below the ground surface. Each sample was analyzed for PCBs. The "Site Sketch Map" obtained by Leader shows the eight sampling locations and soil results. The results indicate PCB concentrations ranged from "not detected" to "22," presumably in units of milligrams per Kilogram ("mg/Kg").

- July 1999 Supplemental Site Assessment Report, Alpha Geoscience ("Alpha"). This report is a summary of investigations completed to partially fulfill Consent Order A4-035109701. According to the report three rounds of sampling were completed to evaluate PCB concentrations in the surface soil around the former transformer and capacitor storage pad and one groundwater sample from monitoring well MW-1 (March 25, 1998). The report also summarizes the soil sampling activities for petroleum contamination, which was conducted on August 5 and 6, 1998 and groundwater sampling conducted on January 7, 1999. A total of 47 soil samples were collected and composited into 15 samples for PCB analysis. According to Penn E&R, eight subsurface sample locations (S-1, S-2, S-6, S-7, S-8, S-10, S-12 and S-13) had PCB concentrations greater than 10.0 mg/Kg. Eight surface soil samples had PCB concentrations ranging from greater than 10.0 mg/Kg to 16.5 mg/Kg. During this same sampling event Alpha sampled monitoring well MW-1, reportedly down gradient of the concrete building pad, for PCBs and found PCBs were not detected above the laboratory detection limit of 0.5 micrograms per Liter ("µg/L").

- As a part of the July 1999 Supplemental Site Assessment Report, Alpha also excavated test pits and sampled monitoring wells. Sixteen test pits were completed to depths ranging from 7 to 8 feet below the ground surface. Four soil samples were collected and analyzed and two samples which were collected from the bailer and shear operations were found to be impacted, but at concentrations below 6 NYCRR Part 375 Restricted Residential Soil Cleanup Objectives ("RUSCO"). The groundwater flowing into the test pits near the shear was found to have a thin film of petroleum. Groundwater impacts were identified at monitoring well locations MW-2 and MW-4 (installed near the shear). Benzene was found in both monitoring well MW-2 and MW-4 at concentrations of 2.0 µg/L and 27.0 µg/L, respectively. MTBE was detected in only monitoring well MW-2 at a concentration of 63.0 µg/L.

- June 6, 2000, Sampling of the Debris Pile, W. Z. Baumgartner & Associates, Inc. ("Baumgartner"). Baumgartner conducted the collection and analysis of material, suspected to be automobile shredder residue ("ASR"), following a draft work plan prepared by Alpha Geoscience. Baumgartner did not provide an interpretation of the results. Twelve composite samples were analyzed for TCLP RCRA Metals, polynuclear aromatic hydrocarbons ("PAHs"), aromatic volatile organic compounds ("VOCs") and PCBs. Two of the samples exceeded the 5.0 milligrams per Liter ("mg/L") regulatory limit for TCLP Lead by approximately 2.6 mg/L. PCB concentrations for Aroclors 1242 and 1254 ranged from 2.414 mg/Kg to 26.64 mg/Kg.

- Penn E&R conducted a Phase I Environmental Site Assessment ("Phase I") of the Site in January 4, 2011.
- Between December 2016 and July 2019, Leader conducted an RI and supplemental investigations, which were used to develop an IRM in 2019 and 2020. In May of 2020, Leader submitted the RI for the Site. Contaminant concentrations were found in excess of the Part 375 Industrial Use Soil Cleanup Objectives ("IUSCO") in the berm soil, surface soil associated with building/structures supporting the former stationary equipment (crusher and shredder) and subsurface soils. All but the subsurface soils have been addressed by the IRMs. The contaminated subsurface soils are limited and are presently beneath one foot or more of gravel/recycled concrete or soil, see Figure 9. Off-Site soils were found to be impacted in the right of way of Tibbits Avenue and several subsurface soil samples were found to be impacted in the right of way along Cannon Street. The surface soils along Tibbits Avenue have been removed as a part of an IRM. Subsurface soil contamination is limited to selected spots along Cannon Street and are not associated with activities on the Site. Groundwater impacts are present beneath the Site and consist of Iron, Manganese and Sodium. VOCs and SVOCs were found at low concentrations and do not appear to be migrating off-Site. Soil vapor sampling was conducted and one chlorinated solvent, Vinyl Chloride was found at a concentration of 153 µg/L. Vinyl Chloride at this concentration would normally require mitigation, but since none of the Site buildings are heated or occupied at this time, no action is necessary. The current use of the property and the current extent of contamination is such that there are no completed routes of exposure, unless the ground surface is disturbed. Workers following common work practices and the Site-specific Health and Safety Plan ("HASP") will reduce the potential for exposures in the event that the ground surface is disturbed during construction.

2.4 Remedial Action Objectives

The Remedial Action Objectives ("RAOs") for the Site are listed below.

For OU 01:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

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

<u>Soil Vapor</u>

RAOs for Public Health Protection

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

For OU 02:

<u>Soil</u>

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

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

2.4.1 Operable Unit ("OU"): 01 On-Site Groundwater, Soil and Soil Vapor

OU: 01 identifies the on-Site groundwater, soil and soil vapor.

The contaminants found in the groundwater include organic compounds and metals. The RAOs for OU:01 Groundwater include:

- Protection of Public Health to prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.

The contaminants found in the soil include polynuclear-aromatic hydrocarbons ("PAHs"), Mercury, PCBs, Arsenic, Chromium, Lead and Zinc. These contaminants were found primarily in the overburden and debris found beneath the Site's buildings and cover. The RAOs for OU:01 Soil include:

- Protection of Public Health to prevent ingestion/direct contact with contaminated soil.
- Environmental Protection to prevent migration of contaminants that would result in groundwater or surface water contamination.

The contaminants found in the soil vapor include volatile organic compounds. Currently, the Site's buildings are unoccupied and are either unused warehousing space or unused temporary office trailers. The truck maintenance garage is used for minor repair work and tool and equipment storage and is used only a few hours per week by an employee whose occupation is a truck driver. The contaminants are found in the soil and have the potential for migration into the Site's buildings. The RAO for soil vapor includes:

- Public Health Protection to mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at the Site.

2.4.2 Operable Unit ("OU"): 02 Off-Site Soil

OU: 02 identifies the off-Site surface soil and the presence of PCBs in publicly accessible areas (the Tibbits Avenue right of way). The RAOs for OU:02 include:

- Protective of Public Health to prevent ingestion/direct contact with contaminated soil.
- Environmental Protection to prevent migration of contaminants that would result in groundwater or surface water contamination.

2.5 Remaining Contamination

2.5.1 Soil

Contamination remains in the Site soil beneath the Site's gravel surface cover and in the debris fill used to form the berms surrounding much of the Site. The compounds found in the soils include the following: PCBs, PAHs, Arsenic, Chromium, Lead, Mercury and Zinc. The IRM was completed to remove soils in excess of the IUSCO in areas where they were not covered by at least 1-foot of clean soil. Figure 10 shows where the IRM was completed. The wastes generated during the implementation of the IRM were determined to be non-hazardous.

Figure 11 shows the location of samples collected during the RI in excess of the IUSCO. Tables 3A, 3B and 3C summarize soil sample results for the IRM post-excavation cleanup verification samples and Figures 12 and 13 show those sample locations.

Figure 14 shows the RI sampling locations in excess of the RUSCO off-Site and Tables 4A and 4B summarizes those results.

Below each building, roadway and concrete pad on the Site, the materials found should be viewed as having potential residual levels of contamination present that could exceed the IUSCO (see Figures 4, 9 and 11). Utility corridors enter from Cannon Street and a right of way in the northwest corner of the Site. Municipal water enters the Site in the vicinity of the main entrance in an uncovered service pit. The route from this shut off valve/hydrant is unknown, but it is believed to run down the asphalt driveway to a second fire hydrant and perhaps to the maintenance garage at the north end of the property. Gas service is unknown on the property. Electrical services enter the property from the northeast corner of the Site from overhead lines, which run the width of the Site to pole mounted transformers. The main service from these pole transformers are connected to the Site's transformer units. The electrical connection to the Site's pad transformer is disconnected at the pole. A second service line to the Site from Cannon Street, near the main entrance, which feeds the office, warehouse and the maintenance garage.

Because of the sporadic appearance of compounds exceeding the IUSCO on the Site, it is not possible to estimate a volume of residual contamination present; therefore, the Excavation Work Plan should be followed to evaluate each area where excavation is required. Figure 11 shows the location and contaminants exceeding the IUSCO. Figures 12 and 13 show the results (detections only) of the contaminants targeted at each on-Site IRM area, which were left in place. There were four areas on the Site where the IRM addressed contamination: the exterior soil/debris at the former crusher building; the soil/debris at the former Shredder building; Berm location 10 and Berm location 13.

The IRM focused on the Arsenic, Chromium, Mercury and Zinc and contamination at the former crusher building . The goal of the IRM was to reduce the concentrations of these metals and these results are shown on Table 3A. The following summarized the IUSCO and the UUSCO values: Arsenic 16/13 mg/Kg; Chromium 6,800/30 mg/Kg for Trivalent Chromium and 800/1 mg/Kg for Hexavalent Chromium; Mercury 5.7/0.18 mg/Kg; and Zinc 10,000/109 mg/Kg. During the IRM approximately 1-foot of overburden was removed and disposed of off-Site leaving an elevation of the undisturbed overburden of approximately 26 feet above mean sea level. All of the confirmatory samples achieved the respective IUSCOs, with the exception of Mercury found in the sample from crusher North, which yielded a concentration of 6.85 mg/Kg compared to an IUSCO of 5.7 mg/Kg. The volume of contaminated soil left in place was based on the distance between other sampling points (18-feet) where Mercury was found at a concentration below the IUSCO. The area of potentially contaminated soil is further constrained by the remaining concrete structure of the former crusher which reduces the area by approximately 50-percent. To determine the volume of soil, a 0.5-foot thickness was used. These factors produced a volume of approximately 9 cubic yards of soil.

The IRM post excavation sample locations and results for the shredder building are shown on Figures 12 and 13. To confirm the success of the IRM two samples were collected after the removal of approximately 1-foot of overburden. Lead (106 and 1,230 mg/Kg) and Zinc (482 and 2,682 mg/Kg) were analyzed to verify reaching the IRM goals of lowering the concentrations below the IUSCOs (Lead 3,900 mg/Kg and Zinc 10,000 mg/Kg) see Figure 14. The UUSCO for Lead and Zinc are 63 mg/Kg and 109 mg/Kg. The elevation of the undisturbed overburden is approximately 28 feet above mean sea level.

TABLE 3A
Crusher and Shredder Area Cleanup Verification Sample Results

	IUSCO	Shredder North	Shredder South	Crusher North	1 East Crusher/Duplicate	2 East Crusher	South Crusher	Crush
Arsenic	**16**	**NA**	**NA**	**13.9**	**14.2/12.6**	**7.4**	**6.6**	**NA**
Chromium	**800[1]**	**NA**	**NA**	**379**	**NA**	**NA**	**NA**	**NA**
Lead	**3,900**	**106**	**1230**	**NA**	**NA**	**NA**	**NA**	**NA**
Mercury	**5.7**	**NA**	**NA**	**6.85**	**2.99/2.75**	**<0.038**	**0.305**	**NA**
Zinc	**10,000**	**482**	**2680**	**NA**	**NA**	**NA**	**NA**	**3.83**

SCO for Hexavalent chromium
NA = Not analyzed
All values shown in units mg/Kg

Location Berm 10 was addressed during the IRM for PCB contamination present at a concentration greater than 25 mg/Kg, IUSCO concentration. The UUSCO is 0.1 mg/Kg. Five samples were collected within the excavation and yielded the following results, which are also shown on Table 3B: North at 5-feet below the top of the slope ("BTOS"), 10.87 mg/Kg; East at 6-feet BTOS, less than 0.132 mg/Kg; South at 2-feet BTOS, 8.85 mg/Kg; West at 5-feet BTOS, 5.12 mg/Kg; and Bottom at 9-feet BTOS, 17.08 mg/Kg. The elevation of undisturbed overburden ranges from approximately 26-feet to 30-feet above mean sea level. The overburden found within the berm consists of debris (automotive scrap, demolition debris, etc.).

TABLE 3B
Berm 10 PCB Cleanup Verification Sample Results

Location	**North**	**East**	**South**	**West**	**Bottom**
Result (mg/Kg)	10.87	<0.132	8.85	5.12	17.08

Location Berm 13 was addressed during the IRM for Mercury contamination present at a concentration greater than 5.7 mg/Kg, IUSCO concentration. The UUSCO is 0.18 mg/Kg. Seven samples were collected within the excavation and yielded the following results, which are also shown on Table 3C: North-4 Black at 4.5-feet BTOS, 0.0621 mg/Kg; East at 7-feet BTOS, 1.72 mg/Kg; West-3 at 5-feet BTOS, 3.61 mg/Kg; and Bottom-4 at 10-feet BTOS, 1.26 mg/Kg; and Bottom-5 Black at 8-feet BTOS, 0.984 mg/Kg. The elevation of undisturbed overburden ranges from approximately 24-feet to 29.5-feet above mean sea level. The overburden found within the berm consists of debris (asphalt millings, metal scrap, ash, wood and brick).

TABLE 3C
Berm 13 Mercury Cleanup Verification Sample Results

Location	**North-4 Black**	**East**	**South**	**West -3**	**Bottom-4**	**Bottom-5 Black**
Result (mg/Kg)	0.0621	1.72	No sample	3.61	1.26	0.984

Off-Site the IRM addressed PCB contamination along Tibbits Avenue. The IRM lowered the amount of PCB contamination to a level less than the RUSCO of 1.0 mg/Kg in all locations but one (out of 18 sampled locations), location Surface 10N where PCB was found at a concentration of 1.084 mg/Kg. The UUSCO for PCB is 0.1 mg/Kg and 12 out of 18 samples exceeded that limit. Figures 14 and 15 show the sample locations and sample results for the soil left in-place from the IRM. The IRM removed approximately 4 to 6-inches of mixed topsoil and miscellaneous soil within the right of way. The approximate elevation of the soil left undisturbed (prior to covering with topsoil) ranges on the north side of Tibbits Avenue from 27.78 feet above the mean sea level (east side of IRM area) to 28.7 feet (west side of the IRM area). On the south side of Tibbits Avenue, the elevation of the undisturbed soil ranges from 27.5 above mean sea level (east side of the IRM area) to 28.3 (west side of the IRM area. Based on the distance between sampling points, approximately 40-feet and the width of the right of way, approximately 10-feet, approximately 5-cubic yards of contaminated soil above the RUSCO may remain.

2.5.2 Groundwater

Groundwater samples were collected from soil borings (sometimes using temporary monitoring wells to penetrate the water table) and from monitoring wells also placed in the water table groundwater zone. The samples collected from the soil borings/temporary monitoring wells were collected and analyzed for TCL VOCs with minimal well development. The objective of these "grab" samples was to provide additional information on the extent of groundwater contamination across the Site and perhaps assist in the delineation of the extent of contamination.

The samples collected from monitoring wells were collected after developing the monitoring well screen and purging the wells prior to sampling. During the collection of the monitoring well samples, field parameters were measured and used as an indicator to determine when a representative sample of the groundwater zone could be collected. Samples from monitoring wells were collected on February 1 and 2, 2017 and February 6 and 7, 2019. All samples collected in 2017 from monitoring wells were analyzed for the complete suite of TCL and TAL analytes including pesticides, herbicides, PCBs, mercury and cyanide. Those samples collected in 2019 were analyzed for these compounds plus three samples were also analyzed for the emerging contaminants Perfluorooctanoic Sulfonic Acid PFOS and 1,4-Dioxane. The groundwater sample results are shown on Tables 5A, 5B and 6. Table 7 provides the groundwater elevations and field parameter test results collected during the sampling. Grab sample locations and monitoring well locations are shown on Figure 4.

2.5.3 Grab Water Sample Results

The results of the grab samples analyzed for VOCs are shown on Table 5A and compared to the NYSDEC TOGS ambient groundwater criteria. As Table 5A shows, two compounds were found at concentrations that exceed TOGS:

- Acetone was found in one sample from soil boring SB-10 at a concentration of 540 micrograms per liter ("µg/L"). The TOGS groundwater quality criteria for Acetone is 50 µg/L. Acetone was found in 8 of the 9 samples analyzed.
- Benzene was found at a concentration of 0.96 µg/L in the sample from soil boring SB-21. Benzene has TOGS groundwater quality criteria of 0.7 µg/L.

Other compounds were found, below TOGS including: Trichlorofluoromethane, found in one sample at a concentration of 3.2 µg/L; Vinyl Chloride, found in one sample at a concentration of 0.4 µg/L; Methyl-tert Butyl Ether ("MTBE"), found in four samples at concentrations ranging from 1.3 to 3.2 µg/L; Dichlorofluoromethane, found in one sample at a concentration of 2.3 µg/L; and 2-Butanone, found in one sample at a concentration of 4.1 µg/L.

2.5.4 Monitoring Well Samples Results

2017 Groundwater Monitoring Well Sample Results

The February 2017 groundwater monitoring well samples were collected and analyzed for the complete suite of organic and inorganic compounds. These results are shown on Table 5B. The results are discussed below:

Volatile Organic Compounds

Benzene was the only VOC found to exceed the TOGS groundwater quality criteria. Benzene was found in only three samples ranging in concentration from 0.19 to 4.9 µg/L. The highest concentration of Benzene was found in the sample from monitoring well MW-4. MTBE was the most frequently found compound in 5 of the 10 samples (MTBE was also found in the duplicate sample). The concentrations ranged from 1.9 to 9.8 µg/L. The TOGS criteria is 10 µg/L. The highest concentration was found in the sample from monitoring well MW-4.

The following VOCs were also found at concentrations below their TOGS criteria:

- Acetone was found in 3 of the 10 samples at concentrations ranging from 1.5 to 2.5 µg/L;
- Vinyl Chloride was found in 3 of the 10 samples at concentrations ranging from 0.46 to 0.87 µg/L;
- Chlorobenzene, Chloroethane, 1,4-Dichlorobenzene, m&p Xylene, 2-Butanone, and Cyclohexane were each found once.

Volatile Organic Compound TICs

TICs were identified during the VOC analysis and were found in four samples: monitoring well MW-4 had a total TIC concentration of 96.5µg/L; monitoring well MW-5 had a total TIC concentration of 10.63 µg/L; monitoring well MW-7 had a total TIC concentration of 4.62 µg/L and monitoring well MW-8 had a total TIC concentration of 25.53 µg/L. All of these concentrations were identified as estimates with a "J" qualifier. J indicates the compound is found above the method detection limit, but below the laboratory reporting limit. None of the TICs are a part of the routine analysis; therefore, the laboratory does not have their equipment calibrated to quantify these concentrations, hence the J qualifier. There are no TOGS guidance values or standards for TICs.

Semivolatile Organic Compounds

The SVOCs found at concentrations exceeding TOGS criteria were limited to those polyaromatic hydrocarbons ("PAHs") with TOGS GWQS of 0.002 µg/L and include the following compounds: Benzo (a) anthracene; Benzo (a) pyrene; Benzo (b)fluoranthene; Benzo (k) fluoranthene; Chrysene; and Indeno (1,2,3-cd) pyrene. The concentration of the other SVOCs did not exceed their TOGS criteria. PAH exceedances were found in samples from monitoring wells MW-4, MW-6, and MW-8.

- Benzo (a) anthracene was found in 3 of the 10 samples at concentrations ranging from 0.04 to 0.1 µg/L, with the highest concentration found in the sample from monitoring well MW-8.
- Benzo (a) pyrene was found in the sample from monitoring well MW-8 at a concentration of 0.11µg/L.
- Benzo (b)fluoranthene was found in 3 of the 10 samples at concentrations ranging from 0.02 to 0.18 µg/L, with the highest concentration found in the sample from monitoring well MW-8.
- Benzo (k) fluoranthene was found in the sample from monitoring well MW-8 at a concentration of 0.07 µg/L.
- Chrysene was found in the sample from monitoring well MW-8 at a concentration of 0.13 µg/L.
- Indeno (1,2,3-cd) pyrene was found in the sample from monitoring well MW-8 at a concentration of 0.09 µg/L.

Semivolatile Organic Compound TICs

TICs were identified in 8 of the 10 samples ranging in concentration from 5.07 to 175.49 µg/L. The sample from monitoring well MW-4 found the highest concentration of TICs. The laboratory identified all but one of the TICs as an unknown. The exception to this label is an unknown organic acid found in the samples from monitoring well MW-4 at a concentration of 7.98 µg/L and MW-8 at a concentration of 0.09 µg/L.

Pesticides and Herbicides

Heptachlor was the only compound found in the sample from monitoring well MW-5 at a concentration of 0.015 µg/L. The TOGS quality criteria for Heptachlor is 0.01 µg/L.

PCBs

PCBs (Aroclor 1260) was found in the sample from monitoring well MW-3 at a concentration of 0.046 µg/L, which is below the TOGS quality standard of 0.09 µg/L (for the total concentration for all PCBs).

Metals

Exceedances of the TOGS quality criteria is limited to a few elements: Iron, Manganese and Sodium. Arsenic was found at a concentration just below its standard of 25.0 µg/L at 24.95 µg/L.

Iron was found in every sample. In the sample from monitoring well PES-2, the concentration was just below the TOGS standard of 300 µg/L at 289 µg/L. The Iron concentrations for all groundwater samples ranged from 289 to 12,100 µg/L. The TOGS standards also require the concentration of Iron be evaluated with the concentration of Manganese. In these cases, although each element may be below the TOGS standard, they also must not exceed 500 µg/L as a combined concentration.

Manganese was found in every sample at a concentration exceeding the TOGS standard of 300 µg/L. The concentrations ranged from 873.3 to 4,670 µg/L.

Sodium was found in every sample at a concentration exceeding the TOGS standard of 20,000 µg/L. The concentrations ranged from 32,000 to 158,000 µg/L.

February 2019 Groundwater Monitoring Sample Results

The February 2019 groundwater samples were analyzed for the complete suite of organic and inorganic compounds. The results are shown on Table 6 and discussed below. During this sampling event, monitoring well MW-8 could not be located. The failure to locate monitoring well MW-8 may have been due to recent demolition of the shredder and cyclone structures and the steel placed on the ground or the surface gravel having been moved during the movement of equipment covering the monitoring well cover.

Volatile Organic Compounds

Again, Benzene was the only VOC fond at a concentration exceeding its TOGS. Benzene was found in 1 of 9 samples at a concentration of 2.5 µg/L, the TOGS concentration is 1.0 µg/L; MTBE was the most frequently found compound and was found in 4 of the 10 samples analyzed (MTBE was also found in the duplicate sample). The concentrations ranged from 4.8 to 6.0 µg/L (the TOGS criteria are 10.0 µg/L). The highest concentration was found in the sample from monitoring well MW-5.

The following VOCs were also found at concentrations below their TOGS criteria:

- Vinyl Chloride was found in 1 of the 9 samples at a concentration of 0.3 µg/L, the TOGS concentration is 2.0 µg/L;

- Chlorobenzene was found in 1 of the 9 samples at a concentration of 1.8 μg/L, the TOGS concentration is 5.0 μg/L;
- 1,3-dichlorobenzene was found in 1 of the 9 samples at a concentration of 1.4 μg/L, the TOGS concentration is 5.0 μg/L;
- 1,4-dichlorobenzene was found in 1 of the 9 samples at a concentration of 5.9 μg/L, the TOGS concentration is 5.0 μg/L; and
- Cyclohexane was found in 1 of the 9 samples at a concentration of 0.33 μg/L, there is no TOG concentration for Cyclohexane.

Volatile Organic Compound TICs

Volitile organic compound TICs were identified in four samples: MW-2 at a total TIC concentration of 1.51 μg/L; MW-3 at a total TIC concentration of 4.13 μg/L; MW-4 at a total TIC concentration of 43.1 μg/L; and MW-5 at a total TIC concentration of 2.43 μg/L. The majority of the TICs were identified as unknowns, but the following compounds were identified: 2-Methyl-butane; 1-Chloro-1-fluoro ethane; and Chlorofluoro methane. There are no TOGS guidance values or standards for TICs.

Semivolatile Organic Compounds

SVOCs found at concentrations exceeding TOGS were limited to those PAHs with standards of 0.002 μg/L or less and include the following: Benzo (a) anthracene; Benzo (a) pyrene; Benzo (b)fluoranthene; Benzo (k) fluoranthene; Chrysene; and Indeno (1,2,3-cd) pyrene. Hexachlorobenzene was found in one sample, monitoring well MW-2 at a concentration of 0.08 μg/L and has a TOGS concentration of 0.04 μg/L.

The SVOCs found had concentrations that did not exceed 1.0 μg/L. PAH exceedances were found in samples from monitoring wells MW-2 and MW-4.

- Benzo (a) anthracene were found at concentrations 0.06 μg/L in the sample from monitoring well MW-2 and 0.12 μg/L in the sample from monitoring well MW-4.
- Benzo (a) pyrene was found in 2 of 9 samples at concentrations 0.05 μg/L in the sample from monitoring well MW-2 and 0.09 μg/L in the sample from monitoring well MW-4.
- Benzo (b)fluoranthene was found in 2 of 9 samples at concentrations 0.07 μg/L in the sample from monitoring well MW-2 and 0.15 μg/L in the sample from monitoring well MW-4.
- Benzo (k) fluoranthene was found in 2 of 9 samples at concentrations 0.06 in both samples from monitoring wells MW-2 and MW-4.
- Chrysene was found in 2 of 9 samples at concentrations 0.07 μg/L in the sample from monitoring well MW-2 and 0.03 μg/L in the sample from monitoring well MW-4.
- Indeno (1,2,3-cd) pyrene was found in the sample from monitoring well MW-8 at a concentration of 0.09 μg/L.

Semivolatile Organic Compound TICs

Semivolatile organic compound TICs were identified in each monitoring well sample ranging in concentration from 26.9 to 113 µg/L. The highest concentration of TICs were found in the sample from MW-4. The majority of the TICs found were identified as an unknown, but the following compounds were identified: Butylated hydroxytoluene, triethyl phosphate, Aldol condensates, Sulfur and Cyclic Octaatomic Sulfur.

Pesticides and Herbicides

Heptachlor and 4,4-DDT were the only pesticides/herbicides found. Heptachlor was found in samples MW-1 at a concentration of 0.002 and from NYSDEC monitoring well PES-2 at a concentration of 0.003 µg/L. Heptachlor has a TOGS quality criteria of 0.04 µg/L. Heptachlor was also found in the field blank sample at a concentration of 0.002 µg/L. 4,4-DDT was found in the sample from MW-1 at a concentration of 0.018 µg/L and has a TOGS quality criteria of 0.2 µg/L.

PCBs

PCBs were found in three samples: MW-4 at a total concentration of 0.584 µg/L; MW-5 at a total concentration of 0.054 µg/L and NYSDEC monitoring well PES-2 at a concentration of 0.032 µg/L. PCBs were found in the field blank at a concentration of 0.04 µg/L. The TOGS quality standard of 0.09 µg/L (for the total concentration for all PCBs). The PCB Aroclors found include 1242, 1254 and 1260.

Metals

Exceedances of the TOGS criteria are limited to a few elements: Antimony, Iron, Manganese and Sodium.

Antimony was found in 7 of the 9 samples ranging in concentrations from 0.67 to 4.54 µg/L. The TOGS standard for Antimony is 3 µg/L. Antimony was found above the TOGS concentration in the following samples: MW-1, MW-2 and MW6.

Iron was found in all samples, except in the sample from NYSDEC monitoring well PES-2, where the concentration was below the TOGS standard of 300 µg/L at a concentration of 126 µg/L. The Iron concentrations, for all groundwater samples, ranged from 126 to 24,400 µg/L. The TOGS standards also require the concentration of Iron be evaluated with the concentration of Manganese; in these cases, although each element may be below the TOGS standard, they also must not exceed 500 µg/L as a combined concentration.

Manganese was found in every sample at concentrations exceeding the TOGS standard of 300 µg/L. The concentrations ranged from 354.5 to 6,262 µg/L.

Sodium was found in every sample at a concentration exceeding the TOGS standard of 20,000 µg/L. The concentrations ranged from 23,600 to 99,100 µg/L.

PFAS

On August 26, 2020 NYSDOH identified a Maximum Contaminant Level ("MCL") in drinking water for Polyfluoroalkyl Substances ("PFAS") for drinking water. The MCL for Perfluorooctanesulfonic acid ("PFOS") and Perfluorooctanoic acid ("PFOA") compounds is 10 nanograms per liter ("ng/L"), and 1 µg/L for 1,4-Dioxane. In January 2021, NYDEC incorporated the NYSDOH MCL into guidance under NYSDEC's Part 375 Remedial Programs to assess groundwater. PFOS and PFOAs were found in the three groundwater samples analyzed are shown on Table 6. 1,4-Dioxane was found only once. In general, PFAS were found in all samples including the field blank.

PFAS were analyzed in samples from monitoring wells MW-1, MW-2, and MW-7. The concentration PFOS and PFOA in these samples includes:

- Sample MW-1, PFOS was found at a concentration of 42.9 ng/L and PFOA at a concentration of 134 ng/L; sample MW-2, PFOS was found at a concentration of 136 ng/L and PFOA at a concentration of 102 ng/L; and sample MW-7, PFOS was found at a concentration of 76.8 ng/L and PFOA at a concentration of 64 ng/L. These exceed the MCL guidance of 10 ng/L.
- Other PFOS or PFOA compounds found exceeding 100 ng/L included Perfluorohexanoic Acid at a concentration of 168 ng/L in monitoring well MW-1.

Only two compounds were identified in the field blank PFAS isotope dilution: (N-Methyl Perfluorooctanesulfonamidoacetic Acid ("NMeFOSAA") at a concentration of 0.395J ng/L and N-Ethyl Perfluorooctanesulfonamidoacetic Acid ("NEtFOSAA") at a concentration of 0.451J ng/L. The total concentration of PFAS in the field blank sample was below the reporting limit for the analysis.

1,4-Dioxane was found in the sample from monitoring well MW-7 at a concentration of 0.319 µg/L, below the MCL of 1 µg/L.

2.5.4.1 Summary of Groundwater Conditions

The groundwater impacts most commonly found were Iron, Manganese, Sodium and some PAHs and VOCs (Benzene and MTBE) found in monitoring wells on the north and northwest sides of the Site. None of these contaminants, with the exception of Iron, Manganese and Sodium, appear to be migrating from the Site. Iron, Manganese and Sodium are present in groundwater up-gradient and down-gradient of the Site. These metals are not related to an on-Site source of contamination (see Figure 5 and Tables 5A, 5B, and 6).

2.5.5 Groundwater Flow

Contours of the groundwater surface are shown on Figure 5 shows the elevation of the and depth to groundwater at each monitoring well location. In general, the direction of groundwater flow is from northwest to southeast. There is a second component of flow which is oriented to the east-northeast from vicinity of the northwest quadrant of the Site.

2.5.6 Soil Vapor

Three soil vapor samples and one ambient air sample were collected during the field activities. The sampling locations are shown on Figure 4 and Figure 16. The sample results are shown on Table 9. All samples were analyzed using USEPA Method TO-15 for volatile organic compounds and collected over a period of approximately 8 hours.

The sample analysis results are shown on Table 9 in micrograms per cubic meter ("$\mu g/M^3$"). When compared to the ambient air sample analysis result, none of the soil vapor samples demonstrated cross- contamination as indicated by a compound found in all samples at similar concentrations (with the exception of possibly Ethanol). Ethanol was found in the ambient air sample at a concentration of 26.6 $\mu g/M^3$ and in sample Vapor Point 1 at a concentration of 25.6 $\mu g/M^3$. Ethanol was not found in the other two soil vapor samples.

Ethanol and Acetone were the compounds found at the highest concentrations in the ambient air sample; Ethanol was found in the ambient air sample at a concentration of 26.6 $\mu g/M^3$ and Acetone at 17.1 $\mu g/M^3$. Other VOCs were found but at relative low concentrations of less than 3.0 $\mu g/M^3$ and these include: Benzene, Chloromethane, Trichlorofluoromethane, Isopropanol, and Dichlorodifluoromethane.

Volatile organic compounds found in all three soil vapor samples include Dichlorodifluoromethane, 2- Butanone, n-Hexane, Cyclohexane, Heptane, and Toluene. 2-Butanone was also found at consistently higher concentrations than the other compounds ranging in concentration from 64.6 to 96.1 $\mu g/M^3$. Vinyl Chloride was found only once and the only compound found that is often associated with Tetrachloroethylene and Trichloroethylene. Vinyl Chloride was found in the sample from Vapor Point 3 at a concentration of 153 $\mu g/M^3$.

Compounds found in soil vapor sample Vapor Point 1 include the following: Trichlorofluoromethane at a concentration of 635 $\mu g/M^3$, Acetone at a concentration of 299 $\mu g/M^3$, 2- Butanone at a concentration of 84.6 $\mu g/M^3$, Dichlorodifluoromethane at a concentration of 81.6 $\mu g/M^3$, Ethanol at a concentration of 25.6 $\mu g/M^3$, Carbon Disulfide at a concentration of 17.2 $\mu g/M^3$, Cyclohexane at a concentration of 13.0 $\mu g/M^3$, Toluene at a concentration of 10.9 $\mu g/M^3$, p- and m-Xylene at a concentration of 8.99 $\mu g/M^3$, and Benzene at a concentration of 8.79 $\mu g/M^3$. Other compounds were found but at concentrations of less than approximately 5.0 $\mu g/M^3$.

Compounds found in soil vapor sample Vapor Point 2 include the following: 2,2,4-Trimethylpentane at a concentration of 359 $\mu g/M^3$, Dichlorodifluoromethane at a concentration of 114 $\mu g/M^3$, 2-Butanone at a concentration of 96.1 $\mu g/M^3$, Trichlorofluoromethane at a concentration of 43.8 $\mu g/M^3$, Acetone at a concentration of 394 $\mu g/M^3$, Carbon Disulfide at a concentration of 11.0 $\mu g/M^3$, Cyclohexane at a concentration of 12.5 $\mu g/M^3$, Dibromochloromethane at a concentration of 16.3 $\mu g/M^3$, 2-Hexanone at a concentration of 16.3 $\mu g/M^3$, Toluene at a concentration of 8.52 $\mu g/M^3$, and n-Hexane at a concentration of 7.05 $\mu g/M^3$. Other compounds were found but at concentrations of less than approximately 5.0 $\mu g/M^3$.

Compounds found in soil vapor sample Vapor Point 3 include the following: 2,2,4-Trimethylpentane at a concentration of 11,200 $\mu g/M^3$, Cyclohexane at a concentration of 157 $\mu g/M^3$, Vinyl Chloride at a concentration of 153 $\mu g/M^3$, n-Hexane at a concentration of 101 $\mu g/M^3$, 2-Butanone at a concentration of 64.6 $\mu g/M^3$, Dichlorodifluoromethane at a concentration of 51.4 $\mu g/M^3$, Heptane at a concentration of 31.5 $\mu g/M^3$, Benzene at a concentration of 18.6 $\mu g/M^3$, and 2-Hexanone at a concentration of 15.8 $\mu g/M^3$. Other compounds were found but at concentrations of less than approximately 5 $\mu g/M^3$.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since low levels of contamination remains in areas at the Site, ICs and ECs have been instituted to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the Site. The IC/EC Plan is a component of the SMP and is subject to revision by the NYSDEC.

The plan provides:

- A description of all IC/ECs on the Site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of the Excavation Work Plan (EWP) (as provided in Appendix 5) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the Site; and
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the Site remedy, as determined by the NYSDEC.

3.2 Institutional Controls

A series of ICs is required by the Record of Decision (“ROD”) to: 1) implement, maintain and monitor Engineering Control systems; 2) prevent future exposure to remaining contamination; and, 3) limit the use and development of the Site to industrial uses only. Adherence to these ICs on the Site is required by the Environmental Easement and will be implemented under this SMP. ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishing the Environmental Easement.

The IC boundary is shown on Figure 2. These ICs are:

A. The controlled property may be used for:

1. 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 a manner defined in the 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 Albany County Department of Health to render it safe for use as a drinking water or for industrial purposes, and the user must notify and obtain written approval to do so from the NYSDEC.

5. Groundwater and other environmental or public health monitoring must be performed as defined in the SMP.
6. Data and information pertinent to the 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/Inspection 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 designed 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 in the Environmental Easement.

3.3 Engineering Controls

3.3.1 Cover

Exposure to remaining contamination at the Site is prevented by a cover system placed over the Site. This cover system is comprised of a minimum of 12 inches of clean soil, gravel or recycled concrete, or sections of asphalt pavement, concrete pads, or concrete building slabs. Figure 9 presents the location of the cover system.

The berm areas have been remediated but will require a vegetative cover to minimize dust.

The Excavation Work Plan (EWP) provided in Appendix 5 outlines the procedures required to be implemented in the event the cover system or berm is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection of this cover are provided in the Monitoring and Sampling Plan included in Section 4.0 of this 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 associated Community Air Monitoring Plan ("CAMP") prepared for the Site and provided in Appendix 6.

3.3.2 Soil Vapor

At this time, it is only suspected that vapor intrusion will be a problem for any of the current or future buildings on the Site. Since none of the buildings are occupied work areas for employees, an analysis of the soil vapor conditions on the Site will need to be completed when the building(s) are renovated for occupation or there is new construction on the Site. If a soil vapor extraction or sub-slab depressurization system is implemented, a revision to the SMP will be required.

3.3.3 Criteria for Completion of Remediation/Termination of Remedial Systems

The Site is not required to have an active remediation system so there is no need to specify conditions where a remedial system would be terminated. But if Site use changes, a remedial action might be required and the framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10.

The Site cover system is the only EC in place at this time and will require periodic inspection to verify the integrity of this system in accordance with this SMP in perpetuity.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of the NYSDEC. Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of Site management for the Site are included in the Quality Assurance Project Plan provided in Appendix 7.

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

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs), particularly groundwater standards and Part 375 SCOs for soil; and
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment;

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

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

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 Site–wide Inspection

Site-wide inspections will be performed annually. Modification to the frequency or duration of the inspections will require approval from the NYSDEC. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices, if used in the future. During these inspections, an inspection form will be completed as provided in Appendix 8 – Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General Site conditions at the time of the inspection;
- The Site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and

- Confirm that Site records are up to date.

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

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria; and
- If Site records are complete and up to date; and

Reporting requirements are outlined in Section 7.0 of this plan.

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

4.3 Groundwater Monitoring

4.3.1 Groundwater Sampling

Annual groundwater monitoring will be conducted to monitor the groundwater conditions beneath the Site. All of the monitoring wells sampled during the Remedial Investigation will be sampled for the TCL and TAL analytes including Mercury and Cyanide. The sampling will be done in a manner consistent with the Field and Sampling Plan (Appendix 9). Table 8 provides a summary of the monitoring wells. The location of the monitoring wells is shown on Figure 5.

4.3.2 Reporting of Groundwater Results

The sample results will be reported by the analytical laboratory in an USEPA Category B format, which will be reviewed by a third party and a Data Usability Summary Report prepared. Also, the electronic data deliverable will be uploaded into the NYSDEC's EquIS database.

After review of the data, the data will be discussed and included in the first Periodic Review Report ("PRR"). If the data is consistent (showing a stabilized or decreasing concentration trend) with the previous two sampling events, conducted for the Remedial Investigation, Eastern Metal Recycling, or the current owner, can petition the NYSDEC to change the groundwater monitoring program. This petition can be made within the PRR.

4.3.3 Monitoring Well Replacement/Decommissioning

During the annual Site Certification Inspection or during the annual groundwater monitoring event, the condition of the monitoring wells will be evaluated, which will include:

- An evaluation of the security of well roadbox, standpipe or protective casing for protecting the inner monitoring well casing; for example, is the cover broken, rusted with holes allowing runoff to enter, is the concrete fixing the roadbox or casing to the ground cracked and loose, etc.
- The monitoring well cap (expandable plug or push-on cap) intact preventing runoff from entering the well.
- If visible from the ground surface, does the monitoring wells cement or cement bentonite grout have significant cracks allowing runoff to enter the ground.
- Does the monitoring well have any obstructions or has sediment accumulated in the monitoring well preventing sampling.

Conditions which might prevent sampling or potentially bias sample results will be reported in the PRR and corrective actions taken with the approval of the NYSDEC Project Manager. Depending on the severity of the damage, the monitoring well may require repair or replacement. In general, the monitoring well may require replacement with a like-in-kind monitoring well, but the ability of the former monitoring to produce a sampleable volume of groundwater should be considered to determine if the vertical location of the monitoring well screen should be changed.

As the Site use changes some monitoring well locations may need to be relocated to make way for roads, buildings, or infrastructure. The location, design, and depth of the new monitoring well will be a part of a notification to NYSDEC so approval can be granted.

Following a monitoring well change of location, the new monitoring well construction details and geographical location will need to be uploaded into the EquIS database.

If the owner and NYSDEC agree the monitoring well should be replaced or is no longer needed for the evaluation of groundwater quality, the monitoring well will be decommissioned using methods discussed in NYSDEC guidance "CP-43 – Groundwater Monitoring Well Decommissioning Policy. "

Any changes to the monitoring wells will be noted in the in the next PRR.

4.4 Inspection and Sampling Protocol

If required, all sampling activities will be recorded in a field book and associated sampling log as provided in Appendix 8 – Site Management Forms. Other observations (e.g., groundwater monitoring well integrity, etc.) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring wells. Additional detail regarding monitoring and sampling protocols are provided in the Site-specific Field Activities Plan provided as Appendix 9 of this document.

5.0 OPERATION, MONITORING AND MAINTENANCE PLAN

The Site remedy does not rely on any mechanical systems to protect public health and the environment; therefore, the operation, monitoring, and maintenance of such components is not included in this SMP.

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 engineering controls are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

The Site is within a flood hazard area designated by FEMA/Department of Homeland Security, see Figure 17. In the event of flooding, the cover system over the Site could potentially erode exposing underlying materials that might be a threat to workers on the Site. The effects from erosion could potentially impact the Site's berms since these are positive landforms and have a moderate slope.

Since the Site does not have a central storm water collection system, storm water tends to remain and infiltrate into the subsurface. As a result, contaminants in solution with the storm water does not leave the Site by way of a storm water conveyance system, i.e., storm sewer.

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. Since the Site does not have active remedial systems in use to implement a remedy this section is not discussed.

6.3 Remedial System Optimization

Currently, there are no active remedial systems operating or planned for the Site. In the event Site conditions or the Site use changes, and active remediation is planned and implemented, this section will become applicable.

A Remedial System Optimization ("RSO") study will be conducted any time that the NYSDEC project manager 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 ROD;

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

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

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

The RSO is not a PRR but is complementary to the PRR. While the PRR focuses on the protectiveness of the remedy and compliance with the SMP, and reports on the remedial progress, the RSO focuses on optimization of and improvements to the remedy. An RSO is a thorough evaluation of and implementation of actions that will move the site to closure in a shorter time frame and/or provide cost savings in the long term. Some recommendations developed in the RSO process may address concepts such as:

- Improvements that will make the system more efficient, decrease maintenance costs and downtime, and effectively target the contamination;
- Modification or optimization of a treatment system process;
- Determine whether an in-situ remedy or monitored natural attenuation can replace an active ex-situ treatment remedy;
- Determine the effectiveness of the system versus system shutdown;
- Application of a new technology or remedial approach;
- Improvements that will reduce energy cost or frequency of site visits;
- Evaluation of vendors and disposal arrangements for cost savings;
- Consideration of alternative site management techniques; and
- Implementation of green remediation concepts.

The phases of an RSO include:

- Work plan development;
- Work plan implementation (usually includes data gathering and conceptual site model verification);
- RSO Report; and
- Implementation of recommended actions and final report.

7.0 REPORTING REQUIREMENTS

7.1 Site Management Reports

All Site management inspection and monitoring events will be recorded on the appropriate Site management forms provided in Appendix 8. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 10 and summarized in the PRR.

Table 10 : Schedule of Interim Inspection Reports and Periodic Review Reports

Task/Report	**Reporting Frequency***
Inspection Report	Annually
Periodic Review Report	Annually**

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

** The first PRR will be due 16 months after approval of the SMP.

7.1.1 Annual Inspection

An annual inspection will be completed by a Qualified Environmental Professional or Professional Engineer licensed to practice in New York State for the Site. The report will summarize any changes to the Site, the condition of the Site, maintenance activities conducted by the operator to maintain the Site cover, and groundwater sampling results.

The inspection reports will also include the following:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- 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 (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.

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

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

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

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;

- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment/materials, etc. (attached to the checklist/form).

Sampling (air, soil, groundwater, etc.) data will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EquIS^{TM} database in accordance with the requirements found at this link http://www.dec.ny.gov/chemical/62440.html.

7.2 Periodic Review Report

A PRR will be submitted to the NYSDEC beginning sixteen (16) months after the COC is issued. After submittal of the initial PRR, the next PRR will be submitted annually (12-months) to the NYSDEC or at another frequency as may be required by the NYSDEC. In the event that the Site is subdivided into separate parcels with different ownership, a single PRR will be prepared that addresses the Site described in Appendix 1 – Environmental Easement, unless the NYSDEC agrees each owner should prepare their own PRR and have their own SMP. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the PRR. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the Site.
- Results of the required annual Site inspections and severe condition inspections, if applicable.
- All applicable Site management forms and other records generated for the Site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.
- Data summary tables and graphical representations of contaminant concentrations in the sample results, or the contaminants of concern by media (groundwater, soil vapor, etc.), which includes a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EquIS^{TM} database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.
- A Site evaluation, which includes the following:
- The compliance of the remedy with the requirements of the Site-specific ROD;

- The operation and the effectiveness of all remedial systems, i.e. sub-slab depressurization systems, if used, including identification of any needed repairs or modifications;
- Any new conclusions or observations regarding Site contamination based on inspections or data generated by sampling for the media being monitored;
- Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
- Trends in contaminant levels in the affected media will be evaluated to determine if the remedy continues to be effective in achieving remedial goals as specified by the ROD.
- The overall performance and effectiveness of the remedy.

7.2.1 Certification of Institutional and Engineering Controls

Following the last inspection of the reporting period, a Qualified Environmental Professional or Professional Engineer licensed to practice in New York State will prepare, and include in the PRR, the following certification as required by NYSDEC DER-10:

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

- *The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*
- *The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the NYSDEC;*
- *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 system is performing as designed and are effective;*
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices; and*
- *The information presented in this report is accurate and complete.*

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/Remedial Party or Owner's/Remedial Party's Designated Site Representative] (and if the site consists of multiple properties): *[I have been authorized and designated by all site owners/remedial parties to sign this certification] for the site."*

At the end of each certifying period, as determined by the NYSDEC, the following certification will be provided to the NYSDEC:

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

- *The institutional control employed at this site is unchanged from the date the control was put in place, or last approved by the NYSDEC;*
- *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 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 or Owner's Designated Site Representative] (and if the site consists of multiple properties): [and I have been authorized and designated by all site owners to sign this certification] for the site."

The signed certification will be included in the PRR.

The PRR will be submitted, in electronic format consistent with the SMP template, to the NYSDEC Project Manager and the NYSDOH Project Manager. The PRR may need to be submitted in hard-copy format, as requested by the NYSDEC project manager.

7.3 Corrective Measures Work Plan

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

7.4 Remedial Site Optimization Report

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

The RSO report will be submitted, in electronic format, to the NYSDEC project manager and the NYSDOH project manager.

8.0 REFERENCES

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

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

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

R. Freedman and Son Property, Site Code 401033, Remedial Investigation Report, prepared by Leader Professional Services, Inc. for Eastern Metal Recycling, November 2020.

R. Freedman and Son Property, Site Code 401033, Construction Completion Report prepared by Leader Professional Services, Inc. for Eastern Metal Recycling, December 2020.

APPENDIX 2

LIST OF SITE CONTACTS

This Appendix should include a listing of all Site contacts. The below table should be edited as necessary to include all Site contacts necessary for implementation of the SMP.

Name	Phone/Email Address
Eastern Metal Recycling	856-323-4536 michael.gross@emrgroup.com
Michael Rumrill	585-248-2413 mrumrill@leaderlink.com
Kyle Forster – NYSDEC Project Manager	518-402-8644 kyle.forster@dec.ny.gov
Sarah Quandt – Bureau B Section Chief	518-402-9116 sarah.quandt@dec.ny.gov
Kelly Lewandowski – NYSDEC Site Control	518-402-9553 kelly.lewandowski@dec.ny.gov

APPENDIX 5

EXCAVATION WORK PLAN (EWP)

1.0 NOTIFICATION

At least 15 days prior to the start of any intrusive (i.e., excavation within the fence line of the property), the Site owner or their representative will notify the NYSDEC. Table 1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of Site-related contact information is provided in Appendix 2 (of the SMP).

Table 1: Notifications*

Kyle Forster NYSDEC Project Manager	(518)402-8644, kyle.forster@dec.ny.gov
Sarah Quandt, NYSDEC Section Chief	(518)402-9116, sarah.quandt@dec.ny.gov
Kelly Lewandowski NYSDEC Site Control	(518)402-9553, kelly.lewandowski@dec.ny.gov

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

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for Site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's HASP, in electronic format, if it differs from the HASP provided in Appendix 10 of this SMP;
- Identification of disposal facilities for potential waste streams, if known at the time of notification; and

- Identification of sources of any anticipated backfill, along with all required chemical testing results.

2.0 SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed by a Qualified Environmental Professional during all excavations within the fence line of the property. Soil screening will be performed during all invasive work and will include all excavation work performed during any site redevelopment or maintenance work, such as excavations for foundations and underground utility work, after issuance of the COC.

Soils will be segregated based on screening results into material that potentially require off-Site disposal. In general soil will be segregated according to: 1) material that is solid waste/debris (for example scrap metal, automotive debris, wood, plastics, etc. that can be removed and sorted with excavating equipment); 2) material that is stained, gives off odors or has organic compounds as indicated by portable organic vapor meters; and 3) other material that is not suitable for reuse or backfilling. For example materials that cannot be compacted to a suitable density for the future use of the area or cannot not support a structure that will be erected in the specific area. If the material cannot be reused because it is unsuitable for construction, the material will be tested to determine if the material can be reused on-Site without a cover (meeting the current SCO for the property use). The remaining materials will be characterized for off-Site disposal. Further discussion of off-Site disposal of materials and on-Site reuse is provided in Sections 6.0 and 7.0 of this Appendix.

3.0 SOIL STAGING METHODS

Imported soil stockpiles will be placed on one of the asphalt or concrete surfaces until it is ready to be used. The piles will be covered with anchored tarps as needed to prevent the creation of dust. Stockpiles of material removed from an excavation will be placed on plastic either next to the excavation or on designated asphalt or concrete surface, covered with an anchored tarp cover, and surrounded by hay bales or silt fencing; if there is a potential for runoff from the pile could potentially leave the Site. If the clean cover material (gravel or soil) is removed prior to the excavation work and, will be replaced at the completion of the project, then the piles can be placed on the ground provided there are no liquids or groundwater leaking from the pile.

Stockpiles will be kept covered during non-work hours with appropriately anchored tarps. During the workday, piles may be uncovered if actively being used unless there are dust and runoff concerns.

Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced. Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by the NYSDEC.

4.0 EXCAVATION AND WASTE LOAD-OUT

A Qualified Environmental Professional or Professional Engineer licensed in the State of New York or a designee under their supervision will oversee invasive work and the subsequent handling of excavated material or imported clean soil.

The owner of the property and their contractors are responsible for safe execution of all work performed under this EWP.

The presence of utilities and easements on the Site will be investigated prior to the project start by a person knowledgeable of conducting those investigations. The contractor will be responsible to investigate utilities and easements. It will be determined whether the utilities or easements present a risk or impediment to the planned work under this SMP.

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

A truck wash/cleaning station will be operated on-Site, to remove potentially contaminated material from vehicles or to remove loose material that could spill out on clean areas of the Site or on the public street. The Qualified Environmental Professional/Professional Engineer or their designee will be responsible for ensuring that all outbound trucks are being cleaned as needed, at the truck wash/cleaning station before leaving the Site until the activities performed under this section are complete. Wash waters will be collected and disposed of off-Site in an appropriate manner.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site soil tracking on to the public street(s).

The contractor will be responsible for ensuring all access and egress points are clean of any loose materials derived from the Site or brought to the Site. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

5.0 WASTES TRANSPORTED OFF-SITE

The over the road transport of waste 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 bed liners will be used.

Truck transport routes are shown on Figure 18 of the SMP. All commercial trucks will exit the Site and immediately make a left turn onto Cannon Street and head north to Veterans Memorial Drive. At the next intersection, the trucks will turn left on to Veterans Memorial Drive and left again on to Dyke Avenue/Cohos Avenue. At Tibbits Avenue trucks will turn right and proceed to Route 787. This is a commercial truck route and is also identified by street-side signs.

Trucks will be prohibited from stopping and idling in the residential area next to the project Site. Queuing of trucks will be performed on-Site in order to minimize off-Site disturbance. Off-Site queuing will be prohibited.

6.0 OFF-SITE WASTE DISPOSAL

All excavated material fitting into the previously defined groups for segregating will be treated as waste and will be transported off-Site for disposal in accordance with all local, State and Federal regulations. Solid waste composed of wood and concrete, and scrap metal and automotive debris, can be classified, as allowed by the regulations and the receiving facility, as either a recyclable material or construction and demolition debris.

If material from this Site is proposed for off-Site use (i.e. clean soil removed for development purposes), a formal request will be made to the NYSDEC, which provides analytical data, the location the materials will be reused, and a description for the reuse. Off-Site reuse of the materials from this Site will not occur without formal NYSDEC approval.

In the pre-excavation notification to NYSDEC, the property owner/contractor will identify a plan for the characterization and disposal of the waste materials to be generated by the planned activity. This will include estimated quantities, characterization analysis if available and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C&D debris recovery facility, if known. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the PRR. 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 consistent with 6NYCRR Parts 360, 361, 362, 363, 364 and 365. Material that does not meet Unrestricted SCOs is prohibited from being disposed at a New York State C&D debris recovery facility (6NYCRR Subpart 361-5 registered or permitted facility).

7.0 MATERIALS REUSE ON-SITE

A Qualified Environmental Professional or a Professional Engineer, licensed in New York, will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material (see Section 2) does not remain on-Site. A demarcation layer and final cover or an impervious surface (pavement, concrete, building slabs) will be maintained over remaining contamination. Soil/material being proposed for on-Site reuse will be evaluated following DER-10 Section 5.4I and Tables 5.4I4 and 5.4I10, and Part 375-6.7(d). These soils will not be used for utility excavation backfill, as a part of landscaping, or cover for the berm unless they approved by NYSDEC. As refenced in Section 3.3.1 of the SMP, it is understood that the perimeter soil berms have been remediated to Industrial Use SCO’s and on-Site reuse will be permitted under the ground surface cover system.

Proposed materials for reuse on-Site must be sampled for full suite analytical parameters including per- and polyfluoroalkyl substances (“PFAS”) and 1,4-Dioxane. The sampling frequency will be in accordance with DER-10 Table 5.4I10 unless prior approval is obtained from the NYSDEC Project Manager for modification of the sampling frequency. The analytical results of soil/fill material testing must meet the Site use criteria presented in NYSDEC DER-10 Appendix 5 – “Allowable Constituent Levels for Imported Fill or Soil” for all constituents listed, and the NYSDEC’s “Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances” (October 2020 or date of current version, whichever is later) guidance values. Approvals for modification to the analytical parameters must be obtained from the NYSDEC Project Manager prior to the sampling event. Soil/fill material for reuse will be segregated and staged as described in Sections 2.0, 3.0 and 4.0 of this EWP. The anticipated size and location of stockpiles will be provided in the 15-day notification to the NYSDEC Project Manager. Stockpile locations will be based on the location of Site excavation activities and proximity to nearby Site features. Material reuse on-Site will comply with requirements of NYSDEC DER-10 Section 5.4I4. Any modifications to the requirements of DER-10 Section 5.4I4 must be approved by the NYSDEC Project Manager.

Soil/fill material for reuse on-Site will be segregated and staged as described in Sections 2.0, 3.0, and 4.0 of this EWP. The anticipated size and location of stockpiles will be provided in the 15-day notification to the NYSDEC project manager. Stockpile locations will be based on the location of Site excavation activities and proximity to nearby Site features. Material reuse on-Site will comply with requirements of NYSDEC DER-10 Section 5.4I4. Any modifications to the requirements of DER-10 Section 5.4I4 must be approved by the NYSDEC project manager.

For any standing building or structure that is being proposed for demolition, with the plan of reusing the brick and concrete as fill on the Site, an asbestos survey will be conducted to identify the need for an asbestos abatement. The results will be reported to the NYSDEC and the New York State Department of Labor, as required by regulation. Concrete crushing or processing on-Site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site will not be reused on-Site.

8.0 FLUIDS MANAGEMENT

All liquids being managed on the Site, including but not limited to, excavation dewatering, decontamination waters and groundwater monitoring well purge and development waters, will be containerized for sampling to determine how the material can be handled 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 unless prior approval is obtained from NYSDEC. Dewatering fluids resulting from storm events or runoff will not be discharged to the Site sewer without prior approval from the NYSDEC and the local sewer authority and local municipality, as applicable.

The discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream, river or storm sewer) or sanitary sewer will be performed with the approval of the NYSDEC and the local municipality, as applicable, and with a SPDES permit.

9.0 COVER SYSTEM RESTORATION

After the completion of soil removal or any other invasive activities impacting the cover system or the perimeter berms, the cover system will be restored in a manner that complies with the pre-existing cover condition or other cover method consistent with the ROD. The existing on-Site cover system is comprised of a minimum of 12-inches of clean gravel or recycled concrete aggregate ("RCA"), asphalt pavement, concrete pavement, concrete pads, and concrete floor slabs. A demarcation layer of black geo-textile/filter fabric is present beneath the gravel and RCA; if disturbed this layer will be replaced with orange snow fencing material, colored geotextile or equivalent material, etc. to provide a visual reference to the top of the remaining suspected contaminated zone. If the type of cover system changes (i.e., a gravel cover is replaced by asphalt), this will constitute a modification of the cover system. A figure showing the modified surface will be included in the subsequent PRR and in an updated SMP.

10.0 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the Site will be approved by the qualified environmental professional, as defined in 6 NYCRR Part 375, and will be in compliance with provisions in this SMP prior to receipt at the Site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html or https://www.dec.ny.gov/docs/remediation_hudson_pdf/requesttoreusesoil.pdf, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review. A copy of the form is attached to this appendix.

All imported soils will meet the backfill and cover soil quality standards established in 6 NYCRR 375-6.7(d) and DER-10 Appendix 5 for industrial use. Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in Table 375-6.7(d). Soils that meet general fill requirements under 6 NYCRR Part 360.13, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC project manager. Soil material will be sampled for the full suite of analytical parameters, including PFAS and 1, 4-dioxane. 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.

Material from industrial Sites, spill Sites or other environmental remediation Sites or potentially contaminated Sites will not be imported to the Site unless approved by NYSDEC for a particular use on the Site.

11.0 STORMWATER POLLUTION PREVENTION

For large excavations or large areas of disturbed soil, the requirements for a Stormwater Pollution Prevention Plan ("SWPPR") should be reviewed to determine if a plan needs to be prepared. If a plan is needed for the construction, a copy of the plan should be on Site so NYSDEC or a local code enforcement official can review it. In general, silt barriers or hay bales will be installed around the entire perimeter of the soil excavation/disturbance area or as required by the Stormwater Pollution Prevention Plan.

Silt barriers and hay bales will be inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by the NYSDEC. All necessary repairs due to damage or weathering shall be made immediately. All undercutting or erosion of the silt barrier anchor shall be repaired immediately with appropriate backfill materials and as needed an engineering solution to the problem will be employed. Accumulated sediments will be removed as required to keep the barrier and hay bales functional.

Erosion and sediment control measures identified in the SMP or in the SWPRR, shall be inspected 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.

12.0 EXCAVATION CONTINGENCY PLAN

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

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes [TAL metals, TCL volatiles and semi-volatiles (including 1,4-dioxane), TCL pesticides and PCBs, and PFAS], unless the Site history and previous sampling results provide sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC project manager for approval prior to sampling. Any tanks will be closed as per NYSDEC regulations and guidance.

Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone within two hours 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 PRR.

13.0 COMMUNITY AIR MONITORING PLAN

A Generic CAMP is provided as Appendix 6 of this SMP and should be used as a guide for a project specific CAMP. At the CAMP will include:

- Details of the perimeter air monitoring program;
- Action levels to be used;
- Methods for air monitoring ;
- Analytes measured and instrumentation to be used;
- A figure of the Site and potential locations for air monitoring instrumentation. These locations will be based on the prevailing wind direction but also on the location of potential receptors, including parks, schools, residential areas, etc.

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

14.0 ODOR CONTROL PLAN

The odor control plan is capable of controlling emissions of nuisance odors from the Site. Specific odor control methods to be used on a routine basis will include soil covers, plastic covers, water, or proprietary chemical products. If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted and the source of the odors will be identified and mitigated. Work will not resume until the nuisance odor has 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 contractor, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent the migration of odors off-Site. 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 or a structure; 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) use of chemical odorants in spray or misting systems; I use of staff to monitor odors in surrounding neighborhoods and (f) as soon as possible the direct loading for disposal of the impacted material.

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, an engineered solution to the odor control will be designed and proposed to NYSDEC/NYSDOH before moving forward.

15.0 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 using a dedicated on-Site water truck for road wetting. The truck will be 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.

TABLES

TABLE 2
Groundwater Elevations
Freedman and Son
Site Code #401033
Green Island, New York

Well #	MW-1	MW-1	MW-2	MW-2	MW-3	MW-3	MW-4	MW-4	MW-5	MW-5	MW-6	MW-6	MW-7	MW-7	MW-8	MW-8	PES-2
Date	2/1/2017	2/6/2019	2/1/2017	2/6/2019	2/1/2017	2/6/2019	2/1/2017	2/6/2019	2/1/2017	2/6/2019	2/1/2017	2/6/2019	2/1/2017	2/6/2019	2/1/2017	2/6/2019	2/1/2017
Elevation of Cap/Casing N.A.D. 1988	31.426	31.426	29.904	29.904	30.776	30.776	30.331	30.331	30.467	30.467	26.941	26.941	28.032	28.032	28.591	28.591	26.988
Elv. Ground Surface N.A.D. 1988	28.617	28.617	27.269	27.269	27.975	27.975	27.423	27.423	27.338	27.338	26.188	26.188	27.752	27.752	28.919	28.919	27.274
Depth of Monitoring Well in feet	17.8	17.8	17.75	17.75	18.1	18.1	14.8	14.8	13	13	12.5	12.5	14.6	14.6	16	16	11.7
Depth to Groundwater in feet	13.64	13.5	7.35	7.1	13.08	13	7.9	7.95	7.64	7.3	7.61	7.5	4.86	5	5.05	NS	7.05

TABLE 4A
Off-Site Soil Sample Results from Surface Soil Samples
Former Freedman Son
Site Code # 401033
Green Island, New York

				SAMPLE ID:	SURFACE-1		SURFACE-2		SURFACE-7		SURFACE-8		SURFACE-9		SURFACE-10		SURFACE-11		SURFACE-12		SURFACE-13	
				LAB ID:	L1702357-01		L1702357-02		L1702771-01		L1702771-02		L1702771-03		L1702771-04		L1702771-05		L1702771-06		L1702771-07	
				COLLECTION DATE:	1/24/2017		1/24/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017	
				SAMPLE DEPTH:																		
				SAMPLE MATRIX:																		
		IUSCO	RRSCO	UUSCO																		
ANALYTE	CAS	(mg/kg)	(mg/kg)	(mg/kg)	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
VOLATILE ORGANICS BY GC/MS																						
Methylene chloride	75-09-2	1000	100	0.05	0.0016	J	0.013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	75-34-3	480	26	0.27	0.002	U	0.0019	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	67-66-3	700	49	0.37	0.002	U	0.0019	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	56-23-5	44	2.4	0.76	0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	78-87-5				0.0047	U	0.0045	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	124-48-1				0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	79-00-5				0.002	U	0.0019	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	127-18-4	300	19	1.3	0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	108-90-7	1000	100	1.1	0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane	75-69-4				0.0067	U	0.0064	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	107-06-2	60	3.1	0.02	0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	71-55-6	1000	100	0.68	0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	75-27-4				0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	10061-02-6				0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	10061-01-5				0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromoform	75-25-2				0.0054	U	0.0051	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	79-34-5				0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	71-43-2	89	4.8	0.06	0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	108-88-3	1000	100	0.7	0.002	U	0.0019	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	100-41-4	780	41	1	0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloromethane	74-87-3				0.0067	U	0.0064	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromomethane	74-83-9				0.0027	U	0.0026	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	75-01-4	27	0.9	0.02	0.0027	U	0.0026	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	75-00-3				0.0027	U	0.0026	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	75-35-4	1000	100	0.33	0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	156-60-5	1000	100	0.19	0.002	U	0.0019	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	79-01-6	400	21	0.47	0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	95-50-1	1000	100	1.1	0.0067	U	0.0064	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	541-73-1	560	49	2.4	0.0067	U	0.0064	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	106-46-7	250	13	1.8	0.0067	U	0.0064	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl tert butyl ether	1634-04-4	1000	100	0.93	0.0027	U	0.0026	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	179601-23-1				0.0027	U	0.0026	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	95-47-6				0.0027	U	0.0026	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	156-59-2	1000	100	0.25	0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	100-42-5				0.0027	U	0.0026	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	75-71-8				0.013	U	0.013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acetone	67-64-1	1000	100	0.05	0.013	U	0.002	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon disulfide	75-15-0				0.013	U	0.013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone	78-93-3	1000	100	0.12	0.013	U	0.013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone	108-10-1				0.013	U	0.013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Hexanone	591-78-6				0.013	U	0.013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromochloromethane	74-97-5				0.0067	U	0.0064	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
mg/Kg= milligrams per kilogram
U = Compound found < value shown
J = Compound found < lab reporting limit
E= Estimated value

TABLE 4A
Off-Site Soil Sample Results from Surface Soil Samples
Former Freedman Son
Site Code # 401033
Green Island, New York

				SAMPLE ID:	**SURFACE-1**		**SURFACE-2**		**SURFACE-7**		**SURFACE-8**		**SURFACE-9**		**SURFACE-10**		**SURFACE-11**		**SURFACE-12**		**SURFACE-13**	
				LAB ID:	**L1702357-01**		**L1702357-02**		**L1702771-01**		**L1702771-02**		**L1702771-03**		**L1702771-04**		**L1702771-05**		**L1702771-06**		**L1702771-07**	
				COLLECTION DATE:	**1/24/2017**		**1/24/2017**		**1/26/2017**		**1/26/2017**		**1/26/2017**		**1/26/2017**		**1/26/2017**		**1/26/2017**		**1/26/2017**	
				SAMPLE DEPTH:																		
				SAMPLE MATRIX:																		
		IUSCO	**RRSCO**	**UUSCO**																		
ANALYTE	**CAS**	**(mg/kg)**	**(mg/kg)**	**(mg/kg)**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**
1,2-Dibromoethane	106-93-4				0.0054	U	0.0051	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane	96-12-8				0.0067	U	0.0064	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene	98-82-8				0.0013	U	0.0013	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	87-61-6				0.0067	U	0.0064	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	120-82-1				0.0067	U	0.0064	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Acetate	79-20-9				0.027	U	0.026	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclohexane	110-82-7				0.027	U	0.026	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dioxane	123-91-1	250	13	0.1	0.13	U	0.13	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon-113	76-13-1				0.027	U	0.026	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl cyclohexane	108-87-2				0.0054	U	0.0051	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total VOCs					0.0016	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VOLATILE ORGANICS BY GC/MS-TIC																						
Unknown					-		0.00379	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
No Tentatively Identified Compounds					-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					0.0135	J	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					-		0.00563	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TIC Compounds					0.0135	J	0.00942	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SEMIVOLATILE ORGANICS BY GC/MS																						
Acenaphthene	83-32-9	1000	100	20	0.046	J	0.17	U	-		-		-		-		-		-		-	
Hexachlorobenzene	118-74-1	12	1.2	0.33	0.13	U	0.12	U	-		-		-		-		-		-		-	
Bis(2-chloroethyl)ether	111-44-4				0.2	U	0.19	U	-		-		-		-		-		-		-	
2-Chloronaphthalene	91-58-7				0.22	U	0.21	U	-		-		-		-		-		-		-	
3,3'-Dichlorobenzidine	91-94-1				0.22	U	0.21	U	-		-		-		-		-		-		-	
2,4-Dinitrotoluene	121-14-2				0.22	U	0.21	U	-		-		-		-		-		-		-	
2,6-Dinitrotoluene	606-20-2				0.22	U	0.21	U	-		-		-		-		-		-		-	
Fluoranthene	206-44-0	1000	100	100	1.1		3.6		-		-		-		-		-		-		-	
4-Chlorophenyl phenyl ether	7005-72-3				0.22	U	0.21	U	-		-		-		-		-		-		-	
4-Bromophenyl phenyl ether	101-55-3				0.22	U	0.21	U	-		-		-		-		-		-		-	
Bis(2-chloroisopropyl)ether	108-60-1				0.26	U	0.25	U	-		-		-		-		-		-		-	
Bis(2-chloroethoxy)methane	111-91-1				0.24	U	0.23	U	-		-		-		-		-		-		-	
Hexachlorobutadiene	87-68-3				0.22	U	0.21	U	-		-		-		-		-		-		-	
Hexachlorocyclopentadiene	77-47-4				0.63	U	0.6	U	-		-		-		-		-		-		-	
Hexachloroethane	67-72-1				0.18	U	0.17	U	-		-		-		-		-		-		-	
Isophorone	78-59-1				0.2	U	0.19	U	-		-		-		-		-		-		-	
Naphthalene	91-20-3	1000	100	12	0.2	J	0.36		-		-		-		-		-		-		-	
Nitrobenzene	98-95-3				0.2	U	0.19	U	-		-		-		-		-		-		-	
NDPA/DPA	86-30-6				0.18	U	0.17	U	-		-		-		-		-		-		-	
n-Nitrosodi-n-propylamine	621-64-7				0.22	U	0.21	U	-		-		-		-		-		-		-	
Bis(2-ethylhexyl)phthalate	117-81-7				0.3		0.14	J	-		-		-		-		-		-		-	
Butyl benzyl phthalate	85-68-7				0.3		0.21	U	-		-		-		-		-		-		-	
Di-n-butylphthalate	84-74-2				0.078	J	0.21	U	-		-		-		-		-		-		-	
Di-n-octylphthalate	117-84-0				0.22	U	0.21	U	-		-		-		-		-		-		-	
Diethyl phthalate	84-66-2				0.22	U	0.21	U	-		-		-		-		-		-		-	
Dimethyl phthalate	131-11-3				0.22	U	0.21	U	-		-		-		-		-		-		-	

Notes:
mg/Kg= milligrams per kilogram
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Green Island, New York

				SAMPLE ID:	SURFACE-1		SURFACE-2		SURFACE-7		SURFACE-8		SURFACE-9		SURFACE-10		SURFACE-11		SURFACE-12		SURFACE-13	
				LAB ID:	L1702357-01		L1702357-02		L1702771-01		L1702771-02		L1702771-03		L1702771-04		L1702771-05		L1702771-06		L1702771-07	
				COLLECTION DATE:	1/24/2017		1/24/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017	
				SAMPLE DEPTH:																		
				SAMPLE MATRIX:																		
		IUSCO	RRSCO	UUSCO																		
ANALYTE	CAS	(mg/kg)	(mg/kg)	(mg/kg)	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Benzo(a)anthracene	56-55-3	11	1	1	0.56		3.4		-		-		-		-		-		-		-	
Benzo(a)pyrene	50-32-8	1.1	1	1	0.66		3.5		-		-		-		-		-		-		-	
Benzo(b)fluoranthene	205-99-2	11	1	1	0.94		5.2		-		-		-		-		-		-		-	
Benzo(k)fluoranthene	207-08-9	110	3.9	0.8	0.29		1.7		-		-		-		-		-		-		-	
Chrysene	218-01-9	110	3.9	1	0.65		3.8		-		-		-		-		-		-		-	
Acenaphthylene	208-96-8	1000	100	100	0.041	J	2.7		-		-		-		-		-		-		-	
Anthracene	120-12-7	1000	100	100	0.1	J	1.4		-		-		-		-		-		-		-	
Benzo(ghi)perylene	191-24-2	1000	100	100	0.45		2		-		-		-		-		-		-		-	
Fluorene	86-73-7	1000	100	30	0.22	U	0.28		-		-		-		-		-		-		-	
Phenanthrene	85-01-8	1000	100	100	0.63		1.1		-		-		-		-		-		-		-	
Dibenzo(a,h)anthracene	53-70-3	1.1	0.33	0.33	0.12	J	0.66		-		-		-		-		-		-		-	
Indeno(1,2,3-cd)pyrene	193-39-5	11	0.5	0.5	0.49		2.3		-		-		-		-		-		-		-	
Pyrene	129-00-0	1000	100	100	0.96		4.6		-		-		-		-		-		-		-	
Biphenyl	92-52-4				0.5	U	0.048	J	-		-		-		-		-		-		-	
4-Chloroaniline	106-47-8				0.22	U	0.21	U	-		-		-		-		-		-		-	
2-Nitroaniline	88-74-4				0.22	U	0.21	U	-		-		-		-		-		-		-	
3-Nitroaniline	99-09-2				0.22	U	0.21	U	-		-		-		-		-		-		-	
4-Nitroaniline	100-01-6				0.22	U	0.21	U	-		-		-		-		-		-		-	
Dibenzofuran	132-64-9	1000	59	7	0.063	J	0.16	J	-		-		-		-		-		-		-	
2-Methylnaphthalene	91-57-6				0.18	J	0.3		-		-		-		-		-		-		-	
1,2,4,5-Tetrachlorobenzene	95-94-3				0.22	U	0.21	U	-		-		-		-		-		-		-	
Acetophenone	98-86-2				0.04	J	0.051	J	-		-		-		-		-		-		-	
2,4,6-Trichlorophenol	88-06-2				0.13	U	0.12	U	-		-		-		-		-		-		-	
p-Chloro-m-cresol	59-50-7				0.22	U	0.21	U	-		-		-		-		-		-		-	
2-Chlorophenol	95-57-8				0.22	U	0.21	U	-		-		-		-		-		-		-	
2,4-Dichlorophenol	120-83-2				0.2	U	0.19	U	-		-		-		-		-		-		-	
2,4-Dimethylphenol	105-67-9				0.22	U	0.21	U	-		-		-		-		-		-		-	
2-Nitrophenol	88-75-5				0.47	U	0.45	U	-		-		-		-		-		-		-	
4-Nitrophenol	100-02-7				0.31	U	0.29	U	-		-		-		-		-		-		-	
2,4-Dinitrophenol	51-28-5				1	U	1	U	-		-		-		-		-		-		-	
4,6-Dinitro-o-cresol	534-52-1				0.57	U	0.54	U	-		-		-		-		-		-		-	
Pentachlorophenol	87-86-5	55	6.7	0.8	0.18	U	0.17	U	-		-		-		-		-		-		-	
Phenol	108-95-2	1000	100	0.33	0.22	U	0.21	U	-		-		-		-		-		-		-	
2-Methylphenol	95-48-7	1000	100	0.33	0.22	U	0.21	U	-		-		-		-		-		-		-	
3-Methylphenol/4-Methylphenol	108-39-4/106-44-5	1000	100	0.33	0.32	U	0.042	J	-		-		-		-		-		-		-	
2,4,5-Trichlorophenol	95-95-4				0.22	U	0.21	U	-		-		-		-		-		-		-	
Carbazole	86-74-8				0.22	U	0.16	J	-		-		-		-		-		-		-	
Atrazine	1912-24-9				0.18	U	0.17	U	-		-		-		-		-		-		-	
Benzaldehyde	100-52-7				0.29	U	0.28	U	-		-		-		-		-		-		-	
Caprolactam	105-60-2				0.22	U	0.21	U	-		-		-		-		-		-		-	
2,3,4,6-Tetrachlorophenol	58-90-2				0.22	U	0.21	U	-		-		-		-		-		-		-	
Total SVOCs					8.198	-	37.501	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SEMIVOLATILE ORGANICS BY GC/MS-TIC																						
Unknown					-		0.827	J	-		-		-		-		-		-		-	

Notes:
mg/Kg= milligrams per kilogram
U = Compound found < value shown
J = Compound found < lab reporting limit
E= Estimated value

				SAMPLE ID:	SURFACE-1		SURFACE-2		SURFACE-7		SURFACE-8		SURFACE-9		SURFACE-10		SURFACE-11		SURFACE-12		SURFACE-13	
				LAB ID:	L1702357-01		L1702357-02		L1702771-01		L1702771-02		L1702771-03		L1702771-04		L1702771-05		L1702771-06		L1702771-07	
				COLLECTION DATE:	1/24/2017		1/24/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017	
				SAMPLE DEPTH:																		
				SAMPLE MATRIX:																		
		IUSCO	RRSCO	UUSCO																		
ANALYTE	CAS	(mg/kg)	(mg/kg)	(mg/kg)	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Unknown Organic Acid					-		-		-		-		-		-		-		-		-	
Unknown					-		0.628	J	-		-		-		-		-		-		-	
Unknown Alkane					-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alkane					-		-		-		-		-		-		-		-		-	
Unknown Alkane					-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH					-		0.938	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alkane					-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					-		0.694	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH					-		2.74	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH					0.184	J	0.487	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alkane					-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alkane					-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH					-		1.27	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					-		0.369	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					-		0.348	J	-		-		-		-		-		-		-	
Unknown Alkane					-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					-		0.473	J	-		-		-		-		-		-		-	
Unknown PAH					-		0.373	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfur	013798-23-7				-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH					-		0.576	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alkane					-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH					-		0.511	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Phenol					-		-		-		-		-		-		-		-		-	
Unknown					-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH					0.45	J	0.574	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vitamin E	010191-41-0				-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH					-		1.23	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH					-		0.678	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					-		1.59	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH					-		1.34	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH					-		0.706	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH					0.202	J	0.648	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					0.55	J	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total SVOCs					1.386	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHLORINATED HERBICIDES BY GC																						
MCPP	93-65-2				4.36	U	4.22	U	-		-		-		-		-		-		-	
MCPA	94-74-6				4.36	U	4.22	U	-		-		-		-		-		-		-	
Dalapon	75-99-0				0.0436	U	0.0422	U	-		-		-		-		-		-		-	
Dicamba	1918-00-9				0.0436	U	0.0422	U	-		-		-		-		-		-		-	
Dichloroprop	120-36-5				0.0436	U	0.0422	U	-		-		-		-		-		-		-	
2,4-D	94-75-7				0.218	U	0.211	U	-		-		-		-		-		-		-	
2,4-DB	94-82-6				0.218	U	0.211	U	-		-		-		-		-		-		-	

Notes:
mg/Kg= milligrams per kilogram
U = Compound found < value shown
J = Compound found < lab reporting limit
E= Estimated value

TABLE 4A
Off-Site Soil Sample Results from Surface Soil Samples
Former Freedman Son
Site Code # 401033
Green Island, New York

				SAMPLE ID:	SURFACE-1		SURFACE-2		SURFACE-7		SURFACE-8		SURFACE-9		SURFACE-10		SURFACE-11		SURFACE-12		SURFACE-13	
				LAB ID:	L1702357-01		L1702357-02		L1702771-01		L1702771-02		L1702771-03		L1702771-04		L1702771-05		L1702771-06		L1702771-07	
				COLLECTION DATE:	1/24/2017		1/24/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017	
				SAMPLE DEPTH:																		
				SAMPLE MATRIX:																		
		IUSCO	RRSCO	UUSCO																		
ANALYTE	CAS	(mg/kg)	(mg/kg)	(mg/kg)	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
2,4,5-T	93-76-5				0.218	U	0.211	U	-		-		-		-		-		-		-	
2,4,5-TP (Silvex)	93-72-1	1000	100	3.8	0.218	U	0.211	U	-		-		-		-		-		-		-	
Dinoseb	88-85-7				0.0436	U	0.0422	U	-		-		-		-		-		-		-	
ORGANOCHLORINE PESTICIDES BY GC																						
Delta-BHC	319-86-8	1000	100	0.04	0.00206	U	0.00198	U	-		-		-		-		-		-		-	
Lindane	58-89-9	23	1.3	0.1	0.000858	U	0.000826	U	-		-		-		-		-		-		-	
Alpha-BHC	319-84-6	6.8	0.48	0.02	0.000858	U	0.000826	U	-		-		-		-		-		-		-	
Beta-BHC	319-85-7	14	0.36	0.036	0.00206	U	0.00198	U	-		-		-		-		-		-		-	
Heptachlor	76-44-8	29	2.1	0.042	0.00103	U	0.000991	U	-		-		-		-		-		-		-	
Aldrin	309-00-2	1.4	0.097	0.005	0.00206	U	0.00198	U	-		-		-		-		-		-		-	
Heptachlor epoxide	1024-57-3				0.00376	JPI	0.00371	U	-		-		-		-		-		-		-	
Endrin	72-20-8	410	11	0.014	0.00728		0.000826	U	-		-		-		-		-		-		-	
Endrin aldehyde	7421-93-4				0.00257	U	0.00248	U	-		-		-		-		-		-		-	
Endrin ketone	53494-70-5				0.00206	U	0.00198	U	-		-		-		-		-		-		-	
Dieldrin	60-57-1	2.8	0.2	0.005	0.00817	PI	0.00299	PI	-		-		-		-		-		-		-	
4,4'-DDE	72-55-9	120	8.9	0.0033	0.00206	U	0.000988	JPI	-		-		-		-		-		-		-	
4,4'-DDD	72-54-8	180	13	0.0033	0.00206	U	0.00198	U	-		-		-		-		-		-		-	
4,4'-DDT	50-29-3	94	7.9	0.0033	0.0207	PI	0.0228		-		-		-		-		-		-		-	
Endosulfan I	959-98-8	920	24	2.4	0.00206	U	0.00198	U	-		-		-		-		-		-		-	
Endosulfan II	33213-65-9	920	24	2.4	0.00288	PI	0.00198	U	-		-		-		-		-		-		-	
Endosulfan sulfate	1031-07-8	920	24	2.4	0.000858	U	0.000826	U	-		-		-		-		-		-		-	
Methoxychlor	72-43-5				0.00386	U	0.00371	U	-		-		-		-		-		-		-	
Toxaphene	8001-35-2				0.0386	U	0.0371	U	-		-		-		-		-		-		-	
cis-Chlordane	5103-71-9	47	4.2	0.094	0.00257	U	0.00248	U	-		-		-		-		-		-		-	
trans-Chlordane	5103-74-2				0.00257	U	0.00248	U	-		-		-		-		-		-		-	
Chlordane	57-74-9				0.0167	U	0.0161	U	-		-		-		-		-		-		-	
POLYCHLORINATED BIPHENYLS BY GC																						
Aroclor 1016	12674-11-2	25	1	0.1	0.0432	U	0.0408	U	0.0509	U	0.0456	U	0.054	U	0.0528	U	0.229	U	0.0381	U	0.0389	U
Aroclor 1221	11104-28-2	25	1	0.1	0.0432	U	0.0408	U	0.0509	U	0.0456	U	0.054	U	0.0528	U	0.229	U	0.0381	U	0.0389	U
Aroclor 1232	11141-16-5	25	1	0.1	0.0432	U	0.0408	U	0.0509	U	0.0456	U	0.054	U	0.0528	U	0.229	U	0.0381	U	0.0389	U
Aroclor 1242	53469-21-9	25	1	0.1	0.136		0.0489		0.118		0.0729		0.34		0.105		0.113	J	0.0381	U	0.0179	J
Aroclor 1248	12672-29-6	25	1	0.1	0.0432	U	0.0408	U	0.0509	U	0.0456	U	0.054	U	0.0528	U	0.229	U	0.0381	U	0.0389	U
Aroclor 1254	11097-69-1	25	1	0.1	0.401		0.103		0.314		0.106		0.625		0.392		1.08		0.0107	J	0.0203	J
Aroclor 1260	11096-82-5	25	1	0.1	0.449		0.0974		0.253		0.095		0.474		0.36		0.336		0.0381	U	0.011	J
Aroclor 1262	37324-23-5	25	1	0.1	0.0432	U	0.0408	U	0.0509	U	0.0456	U	0.054	U	0.0528	U	0.229	U	0.0381	U	0.0389	U
Aroclor 1268	11100-14-4	25	1	0.1	0.0432	U	0.0408	U	0.0509	U	0.0456	U	0.054	U	0.0528	U	0.229	U	0.0381	U	0.0389	U
PCBs, Total	1336-36-3	25	1	0.1	0.986		0.249		0.685		0.274		1.44		0.857		1.53	J	0.0107	J	0.0492	J
TOTAL METALS																						
Aluminum, Total	7429-90-5				7000		7200		-		-		-		-		-		-		-	
Antimony, Total	7440-36-0				6.4		6.4		-		-		-		-		-		-		-	
Arsenic, Total	7440-38-2	16	16	13	9.6		13		-		-		-		-		-		-		-	
Barium, Total	7440-39-3	10000	400	350	110		78		-		-		-		-		-		-		-	
Beryllium, Total	7440-41-7	2700	72	7.2	0.3	J	0.32	J	-		-		-		-		-		-		-	
Cadmium, Total	7440-43-9	60	4.3	2.5	2.2		0.81	J	-		-		-		-		-		-		-	

Notes:
mg/Kg= milligrams per kilogram
U = Compound found < value shown
J = Compound found < lab reporting limit
E= Estimated value

TABLE 4A
Off-Site Soil Sample Results from Surface Soil Samples
Former Freedman Son
Site Code # 401033
Green Island, New York

				SAMPLE ID:	SURFACE-1		SURFACE-2		SURFACE-7		SURFACE-8		SURFACE-9		SURFACE-10		SURFACE-11		SURFACE-12		SURFACE-13	
				LAB ID:	L1702357-01		L1702357-02		L1702771-01		L1702771-02		L1702771-03		L1702771-04		L1702771-05		L1702771-06		L1702771-07	
				COLLECTION DATE:	1/24/2017		1/24/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017		1/26/2017	
				SAMPLE DEPTH:																		
				SAMPLE MATRIX:																		
		IUSCO	RRSCO	UUSCO																		
ANALYTE	CAS	(mg/kg)	(mg/kg)	(mg/kg)	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Calcium, Total	7440-70-2				11000		7900		-		-		-		-		-		-		-	
Chromium, Total	7440-47-3	6,800	180	30	55		34		-		-		-		-		-		-		-	
Cobalt, Total	7440-48-4				9.4		10		-		-		-		-		-		-		-	
Copper, Total	7440-50-8	10000	270	50	540		340		-		-		-		-		-		-		-	
Iron, Total	7439-89-6				34000		37000		-		-		-		-		-		-		-	
Lead, Total	7439-92-1	3900	400	63	700		370		-		-		-		-		-		-		-	
Magnesium, Total	7439-95-4				5300		3000		-		-		-		-		-		-		-	
Manganese, Total	7439-96-5	10000	2000	1600	600		540		-		-		-		-		-		-		-	
Mercury, Total	7439-97-6	5.7	0.81	0.18	1.3		0.87		-		-		-		-		-		-		-	
Nickel, Total	7440-02-0	10000	310	30	53		37		-		-		-		-		-		-		-	
Potassium, Total	7440-09-7				640		570		-		-		-		-		-		-		-	
Selenium, Total	7782-49-2	6800	180	3.9	2.1	U	2	U	-		-		-		-		-		-		-	
Silver, Total	7440-22-4	6800	180	2	0.41	J	0.98	U	-		-		-		-		-		-		-	
Sodium, Total	7440-23-5				110	J	77	J	-		-		-		-		-		-		-	
Thallium, Total	7440-28-0				2.1	U	2	U	-		-		-		-		-		-		-	
Vanadium, Total	7440-62-2				35		29		-		-		-		-		-		-		-	
Zinc, Total	7440-66-6	10000	10000	109	500		280		-		-		-		-		-		-		-	
GENERAL CHEMISTRY																						
Solids, Total	NONE				74.7		78.1		64.4		72		59.6		61.2		70.6		82.4		80.8	
Cyanide, Total	57-12-5	10000	27	27	0.65	J	0.34	J	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Comparison is not performed on parameters with non-numeric criteria.

NY-RESI: New York NYCRR Part 375 Industrial Criteria, New York Restricted use Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.
NY-RESRR: New York NYCRR Part 375 Restricted-Residential Criteria, New York Restricted use Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.
NY-UNRES: New York NYCRR Part 375 New York Unrestricted use Criteria Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.

Notes:
mg/Kg= milligrams per kilogram
U = Compound found < value shown
J = Compound found < lab reporting limit
E= Estimated value

TABLE 4B
Off-Site Subsurface Soil Sample Results from Soil Borings
Former Freedman and Son
Site Code 401033
Green Island, New York

				SAMPLE ID (Depth ft.)	SB-25 (0-2)		SB-25 (4-8)	
				Monitoring Well ID				
				LAB ID:	L1701908-09		L1701908-10	
				COLLECTION DATE:	1/19/2017		1/19/2017	
ANALYTE	Groundwater Protection Soil Cleanup Objective (mg/kg)	IUSCO (mg/kg)	RRSCO (mg/kg)	UUSCO (mg/kg)	Conc	Q	Conc	Q
VOLATILE ORGANICS BY GC/MS								
Methylene chloride	0.05	1000	100	0.05	0.0021	J	0.0026	J
1,1-Dichloroethane	0.27	480	26	0.27	0.0018	U	0.0016	U
Chloroform	0.37	700	49	0.37	0.0018	U	0.0016	U
Carbon tetrachloride	0.76	44	2.4	0.76	0.0012	U	0.0011	U
1,2-Dichloropropane					0.0041	U	0.0038	U
Dibromochloromethane					0.0012	U	0.0011	U
1,1,2-Trichloroethane					0.0018	U	0.0016	U
Tetrachloroethene	1.3	300	19	1.3	0.0012	U	0.0011	U
Chlorobenzene	1.1	1000	100	1.1	0.0012	U	0.0011	U
Trichlorofluoromethane					0.0058	U	0.0055	U
1,2-Dichloroethane	0.02	60	3.1	0.02	0.0012	U	0.0011	U
1,1,1-Trichloroethane	0.68	1000	100	0.68	0.0012	U	0.0011	U
Bromodichloromethane					0.0012	U	0.0011	U
trans-1,3-Dichloropropene					0.0012	U	0.0011	U
cis-1,3-Dichloropropene					0.0012	U	0.0011	U
1,3-Dichloropropene, Total								
Bromoform					0.0047	U	0.0044	U
1,1,2,2-Tetrachloroethane					0.0012	U	0.0011	U
Benzene	0.06	89	4.8	0.06	0.0012	U	0.0011	U
Toluene	0.7	1000	100	0.7	0.0018	U	0.0016	U
Ethylbenzene	1	780	41	1	0.0012	U	0.0011	U
Chloromethane					0.0058	U	0.0055	U
Bromomethane					0.0023	U	0.0022	U
Vinyl chloride	0.02	27	0.9	0.02	0.0023	U	0.0022	U
Chloroethane					0.0023	U	0.0022	U
1,1-Dichloroethene	0.33	1000	100	0.33	0.0012	U	0.0011	U
trans-1,2-Dichloroethene	0.19	1000	100	0.19	0.0018	U	0.0016	U
Trichloroethene	0.47	400	21	0.47	0.0012	U	0.0011	U
1,2-Dichlorobenzene	1.1	1000	100	1.1	0.0058	U	0.0055	U
1,3-Dichlorobenzene	2.4	560	49	2.4	0.0058	U	0.0055	U
1,4-Dichlorobenzene	1.8	250	13	1.8	0.0058	U	0.0055	U
Methyl tert butyl ether	0.93	1000	100	0.93	0.0023	U	0.0022	U
p/m-Xylene					0.0023	U	0.0022	U
o-Xylene					0.0023	U	0.0022	U
Xylenes, Total	1.6	1000	100	0.26				
cis-1,2-Dichloroethene	0.25	1000	100	0.25	0.0012	U	0.0011	U
1,2-Dichloroethene, Total								
Styrene					0.0023	U	0.0022	U
Dichlorodifluoromethane					0.012	U	0.011	U
Acetone	0.05	1000	100	0.05	0.012	U	0.011	U
Carbon disulfide					0.012	U	0.011	U
2-Butanone	0.12	1000	100	0.12	0.012	U	0.011	U
4-Methyl-2-pentanone					0.012	U	0.011	U
2-Hexanone					0.012	U	0.011	U
Bromochloromethane					0.0058	U	0.0055	U
1,2-Dibromoethane					0.0047	U	0.0044	U
n-Butylbenzene	12	1000	100	12				
sec-Butylbenzene	11	1000	100	11				

Notes:
mg/Kg = Milligram per kilogram
U = Compound not found above concentration shown
J = Compound found below lab report limit
E= Estimated
R1 = Repeated analysis
PI = Quality assurance exceedance

TABLE 4B
Off-Site Subsurface Soil Sample Results from Soil Borings
Former Freedman and Son
Site Code 401033
Green Island, New York

				SAMPLE ID (Depth ft.)	**SB-25 (0-2)**		**SB-25 (4-8)**	
				Monitoring Well ID				
				LAB ID:	**L1701908-09**		**L1701908-10**	
				COLLECTION DATE:	**1/19/2017**		**1/19/2017**	
ANALYTE	**Groundwater Protection Soil Cleanup Objective (mg/kg)**	**IUSCO (mg/kg)**	**RRSCO (mg/kg)**	**UUSCO (mg/kg)**	**Conc**	**Q**	**Conc**	**Q**
tert-Butylbenzene	5.9	1000	100	5.9				
1,2-Dibromo-3-chloropropane					0.0058	U	0.0055	U
Isopropylbenzene					0.0012	U	0.0011	U
p-Isopropyltoluene								
Naphthalene	12	1000	100	12				
n-Propylbenzene	3.9	1000	100	3.9				
1,2,3-Trichlorobenzene					0.0058	U	0.0055	U
1,2,4-Trichlorobenzene					0.0058	U	0.0055	U
1,3,5-Trimethylbenzene	8.4	380	52	8.4				
1,2,4-Trimethylbenzene	3.6	380	52	3.6				
Methyl Acetate					0.023	U	0.022	U
Cyclohexane					0.023	U	0.022	U
1,4-Dioxane	0.1	250	13	0.1	0.12	U	0.11	U
Freon-113					0.023	U	0.022	U
Methyl cyclohexane					0.0047	U	0.0044	U
Total VOCs					0.0021	-	0.0026	-

Notes:
mg/Kg = Milligram per kilogram
U = Compound not found above concentration shown
J = Compound found below lab report limit
E= Estimated
R1 = Repeated analysis
PI = Quality assurance exceedance

TABLE 4B
Off-Site Subsurface Soil Sample Results from Soil Borings
Former Freedman and Son
Site Code 401033
Green Island, New York

				SAMPLE ID (Depth ft.)	SB-25 (0-2)		SB-25 (4-8)	
				Monitoring Well ID				
				LAB ID:	L1701908-09		L1701908-10	
				COLLECTION DATE:	1/19/2017		1/19/2017	
ANALYTE	Groundwater Protection Soil Cleanup Objective (mg/kg)	IUSCO (mg/kg)	RRSCO (mg/kg)	UUSCO (mg/kg)	Conc	Q	Conc	Q
VOLATILE ORGANICS BY GC/MS-TIC								
Pentane, 2-methyl-								
Unknown Alkane								
Unknown Benzene								
Pentane, 2,3,3-trimethyl-								
Unknown Benzene								
Unknown								
Unknown Aromatic								
Unknown Benzene								
Undecane, 2,6-dimethyl-								
Unknown Cycloalkane								
Pentane								
Tridecane, 7-methyl-								
Unknown								
Unknown Benzene								
Unknown								
Dodecane, 2,6,10-trimethyl-								
Unknown Cyclohexane								
Unknown Benzene								
Pentane, 2,3,4-trimethyl-								
Unknown Naphthalene								
Fluorodichloromethane								
Unknown Alkane								
Ethane, 1-chloro-1-fluoro-								
Butane, 2-Methyl-								
n-Hexane								
Unknown Alkane								
Decane, 3,7-dimethyl-								
Unknown Benzene								
Undecane								
Unknown								
Unknown								
Cyclotrisiloxane, Hexamethyl-								
Unknown Alkane								
Unknown Naphthalene								
Dimethyl sulfide								
Unknown								

Notes:
mg/Kg = Milligram per kilogram
U = Compound not found above concentration shown
J = Compound found below lab report limit
E= Estimated
R1 = Repeated analysis
PI = Quality assurance exceedance

TABLE 4B
Off-Site Subsurface Soil Sample Results from Soil Borings
Former Freedman and Son
Site Code 401033
Green Island, New York

				SAMPLE ID (Depth ft.)	SB-25 (0-2)		SB-25 (4-8)	
				Monitoring Well ID				
				LAB ID:	L1701908-09		L1701908-10	
				COLLECTION DATE:	1/19/2017		1/19/2017	
ANALYTE	Groundwater Protection Soil Cleanup Objective (mg/kg)	IUSCO (mg/kg)	RRSCO (mg/kg)	UUSCO (mg/kg)	Conc	Q	Conc	Q
Cyclopentane								
Unknown Benzene								
Unknown Aromatic								
Unknown								
Unknown								
Tridecane								
Unknown								
1-Pentene								
Ethane, 1,1-Difluoro-								
Unknown Aromatic								
Unknown Naphthalene								
Unknown Aromatic								
Unknown								
Unknown Cyclohexane								
Unknown								
Unknown								
Unknown Benzene								
No Tentatively Identified Compounds								
Tridecane, 7-methyl-								
Unknown Alkane								
Unknown Aromatic								
Pentane, 2,3,4-trimethyl-								
Unknown Naphthalene								
Dodecane, 2,6,10-trimethyl-								
Unknown Alkane								
Unknown								
Unknown Alkane								
Unknown								
Unknown								
Unknown								
Unknown					0.00692	J	0.00671	J
Unknown					0.0288	J	0.0174	J
Unknown					-	-	-	-
Unknown Naphthalene					-	-	-	-
Fluorodichloromethane					-	-	-	-
Unknown					-	-	-	-
Unknown					-	-	-	-
Ethane, 1-chloro-1-fluoro-					-	-	-	-
Unknown					0.0131	J	0.00602	J
Pentane, 2-methyl-					-	-	-	-
Unknown					-	-	-	-
Unknown					0.00613	J	0.0115	J
Unknown					-	-	-	-
Unknown Cyclohexane					-	-	-	-
Total TIC Compounds					0.055	J	0.0416	J

Notes:
mg/Kg = Milligram per kilogram
U = Compound not found above concentration shown
J = Compound found below lab report limit
E= Estimated
R1 = Repeated analysis
PI = Quality assurance exceedance

TABLE 4B
Off-Site Subsurface Soil Sample Results from Soil Borings
Former Freedman and Son
Site Code 401033
Green Island, New York

				SAMPLE ID (Depth ft.)	SB-25 (0-2)		SB-25 (4-8)	
				Monitoring Well ID				
				LAB ID:	L1701908-09		L1701908-10	
				COLLECTION DATE:	1/19/2017		1/19/2017	
ANALYTE	Groundwater Protection Soil Cleanup Objective (mg/kg)	IUSCO (mg/kg)	RRSCO (mg/kg)	UUSCO (mg/kg)	Conc	Q	Conc	Q
SEMIVOLATILE ORGANICS BY GC/MS								
Acenaphthene	98	1000	100	20	0.043	J	0.14	U
Hexachlorobenzene	3.2	12	1.2	0.33	0.12	U	0.11	U
Bis(2-chloroethyl)ether					0.17	U	0.16	U
2-Chloronaphthalene					0.19	U	0.18	U
3,3'-Dichlorobenzidine					0.19	U	0.18	U
2,4-Dinitrotoluene					0.19	U	0.18	U
2,6-Dinitrotoluene					0.19	U	0.18	U
Fluoranthene	1000	1000	100	100	2.4		0.11	U
4-Chlorophenyl phenyl ether					0.19	U	0.18	U
4-Bromophenyl phenyl ether					0.19	U	0.18	U
Bis(2-chloroisopropyl)ether					0.23	U	0.22	U
Bis(2-chloroethoxy)methane					0.21	U	0.2	U
Hexachlorobutadiene					0.19	U	0.18	U
Hexachlorocyclopentadiene					0.55	U	0.52	U
Hexachloroethane					0.15	U	0.14	U
Isophorone					0.17	U	0.16	U
Naphthalene	12	1000	100	12	0.8		0.18	U
Nitrobenzene					0.17	U	0.16	U
NDPA/DPA					0.15	U	0.14	U
n-Nitrosodi-n-propylamine					0.19	U	0.18	U
Bis(2-ethylhexyl)phthalate					0.19	U	0.18	U
Butyl benzyl phthalate					0.19	U	0.18	U
Di-n-butylphthalate					0.19	U	0.18	U
Di-n-octylphthalate					0.19	U	0.18	U
Diethyl phthalate					0.19	U	0.18	U
Dimethyl phthalate					0.19	U	0.18	U
Benzo(a)anthracene	1	11	1	1	1.4		0.11	U
Benzo(a)pyrene	22	1.1	1	1	1.3		0.14	U
Benzo(b)fluoranthene	1.7	11	1	1	2.7		0.11	U
Benzo(k)fluoranthene	1.7	110	3.9	0.8	0.86		0.11	U
Chrysene	1	110	3.9	1	1.9		0.11	U
Acenaphthylene	107	1000	100	100	0.35		0.14	U
Anthracene	1000	1000	100	100	0.43		0.11	U
Benzo(ghi)perylene	1000	1000	100	100	0.83		0.14	U
Fluorene	386	1000	100	30	0.19	U	0.18	U
Phenanthrene	1000	1000	100	100	1.3		0.11	U
Dibenzo(a,h)anthracene	1000	1.1	0.33	0.33	0.29		0.11	U
Indeno(1,2,3-cd)pyrene	8.2	11	0.5	0.5	1.1		0.14	U
Pyrene	1000	1000	100	100	2		0.11	U
Biphenyl					0.14	J	0.42	U
4-Chloroaniline					0.19	U	0.18	U
2-Nitroaniline					0.19	U	0.18	U
3-Nitroaniline					0.19	U	0.18	U
4-Nitroaniline					0.19	U	0.18	U
Dibenzofuran	210	1000	59	7	0.36		0.18	U
2-Methylnaphthalene					0.81		0.22	U
1,2,4,5-Tetrachlorobenzene					0.19	U	0.18	U
Acetophenone					0.11	J	0.18	U

Notes:
mg/Kg = Milligram per kilogram
U = Compound not found above concentration shown
J = Compound found below lab report limit
E= Estimated
R1 = Repeated analysis
PI = Quality assurance exceedance

TABLE 4B
Off-Site Subsurface Soil Sample Results from Soil Borings
Former Freedman and Son
Site Code 401033
Green Island, New York

				SAMPLE ID (Depth ft.)	**SB-25 (0-2)**		**SB-25 (4-8)**	
				Monitoring Well ID				
				LAB ID:	**L1701908-09**		**L1701908-10**	
				COLLECTION DATE:	**1/19/2017**		**1/19/2017**	
ANALYTE	**Groundwater Protection Soil Cleanup Objective (mg/kg)**	**IUSCO (mg/kg)**	**RRSCO (mg/kg)**	**UUSCO (mg/kg)**	**Conc**	**Q**	**Conc**	**Q**
2,4,6-Trichlorophenol					0.12	U	0.11	U
p-Chloro-m-cresol					0.19	U	0.18	U
2-Chlorophenol					0.19	U	0.18	U
2,4-Dichlorophenol					0.17	U	0.16	U
2,4-Dimethylphenol					0.19	U	0.18	U
2-Nitrophenol					0.42	U	0.39	U
4-Nitrophenol					0.27	U	0.26	U
2,4-Dinitrophenol					0.93	U	0.87	U
4,6-Dinitro-o-cresol					0.5	U	0.47	U
Pentachlorophenol	0.8	55	6.7	0.8	0.15	U	0.14	U
Phenol	0.33	1000	100	0.33	0.19	U	0.18	U
2-Methylphenol	0.33	1000	100	0.33	0.19	U	0.18	U
3-Methylphenol/4-Methylphenol	0.33	1000	100	0.33	0.036	J	0.26	U
2,4,5-Trichlorophenol					0.19	U	0.18	U
Carbazole					0.3		0.18	U
Atrazine					0.15	U	0.14	U
Benzaldehyde					0.29		0.24	U
Caprolactam					0.19	U	0.18	U
2,3,4,6-Tetrachlorophenol					0.19	U	0.18	U
Total SVOCs					19.749	-	-	-

Notes:
mg/Kg = Milligram per kilogram
U = Compound not found above concentration shown
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E= Estimated
R1 = Repeated analysis
PI = Quality assurance exceedance

TABLE 4B
Off-Site Subsurface Soil Sample Results from Soil Borings
Former Freedman and Son
Site Code 401033
Green Island, New York

				SAMPLE ID (Depth ft.)	SB-25 (0-2)		SB-25 (4-8)	
				Monitoring Well ID				
				LAB ID:	L1701908-09		L1701908-10	
				COLLECTION DATE:	1/19/2017		1/19/2017	
ANALYTE	Groundwater Protection Soil Cleanup Objective (mg/kg)	IUSCO (mg/kg)	RRSCO (mg/kg)	UUSCO (mg/kg)	Conc	Q	Conc	Q
SEMIVOLATILE ORGANICS BY GC/MS-TIC								
Unknown Biphenyl								
Unknown Benzene								
Unknown								
Unknown PAH								
Vitamin E								
Unknown Benzene								
Unknown PAH								
Unknown PAH								
Unknown PAH								
Unknown PAH								
Unknown Biphenyl								
Unknown Organic Acid								
Unknown Alkane								
Unknown Alkane								
Unknown Benzene								
Unknown Naphthalene								
Unknown Benzene								
Unknown Biphenyl								
Cyclic Octaatomic Sulfur								
Unknown Naphthalene								
Unknown Biphenyl								
Unknown Benzene								
Unknown Alcohol								
Unknown PAH								
Unknown Biphenyl								
Unknown Alkane								
Unknown Alkane								
Unknown								
Unknown Alkane								
Unknown PAH								
Unknown Biphenyl								
Unknown Organic Acid								
Unknown Naphthalene								
Unknown Naphthalene								
Unknown PAH								
Unknown Benzene								
Unknown Phenol								
Unknown Alkane								
Unknown Naphthalene								
Unknown PAH								
Unknown								
Unknown Benzene								
Unknown								
Sulfur								
Unknown Thiophene								
Unknown Biphenyl								
Unknown Thiophene								

Notes:
mg/Kg = Milligram per kilogram
U = Compound not found above concentration shown
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E= Estimated
R1 = Repeated analysis
PI = Quality assurance exceedance

TABLE 4B
Off-Site Subsurface Soil Sample Results from Soil Borings
Former Freedman and Son
Site Code 401033
Green Island, New York

				SAMPLE ID (Depth ft.)	SB-25 (0-2)		SB-25 (4-8)	
				Monitoring Well ID				
				LAB ID:	L1701908-09		L1701908-10	
				COLLECTION DATE:	1/19/2017		1/19/2017	
ANALYTE	Groundwater Protection Soil Cleanup Objective (mg/kg)	IUSCO (mg/kg)	RRSCO (mg/kg)	UUSCO (mg/kg)	Conc	Q	Conc	Q
Unknown Benzene								
Unknown Sulfur								
Unknown PAH								
Unknown Phenol								
Unknown Biphenyl								
Unknown Alkane								
Unknown Phosphate								
Unknown Biphenyl								
Unknown Biphenyl								
Unknown Organic Acid								
Unknown Benzene								
2,2',3,3',4,5',6-Heptachlor...								
Unknown PAH								
Unknown Alkane								
Unknown								
Unknown Benzene								
Unknown PAH								
Unknown Alkane								
Unknown Alkane								
Unknown								
Unknown								
Unknown Alkane								
Unknown Benzene								
Unknown								
Unknown Benzene								
Unknown Biphenyl								
Unknown Biphenyl								
Unknown Phenol								

Notes:
mg/Kg = Milligram per kilogram
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E= Estimated
R1 = Repeated analysis
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TABLE 4B
Off-Site Subsurface Soil Sample Results from Soil Borings
Former Freedman and Son
Site Code 401033
Green Island, New York

				SAMPLE ID (Depth ft.)	SB-25 (0-2)		SB-25 (4-8)	
				Monitoring Well ID				
				LAB ID:	L1701908-09		L1701908-10	
				COLLECTION DATE:	1/19/2017		1/19/2017	
ANALYTE	Groundwater Protection Soil Cleanup Objective (mg/kg)	IUSCO (mg/kg)	RRSCO (mg/kg)	UUSCO (mg/kg)	Conc	Q	Conc	Q
Unknown								
Unknown PAH								
Unknown Naphthalene								
Unknown								
Unknown PAH								
Unknown Organic Acid								
Unknown								
Unknown								
Unknown								
Unknown Alkane								
Unknown Naphthalene								
Unknown Naphthalene								
Unknown Alkane								
Unknown Alkane								
Unknown								
Unknown Alkane								
Unknown Alkane								
Sulfur								
Unknown PAH								
Unknown Naphthalene								
Unknown Naphthalene								
Unknown Naphthalene								
Unknown Alkane								
Cyclic Octaatomic Sulfur								
Unknown Benzene								
Unknown Alkane								
Unknown Naphthalene								
Unknown Benzene								
Unknown Naphthalene								
Unknown Naphthalene								
Unknown Benzene								
Unknown Alkane								
Unknown								
Unknown PAH								
Unknown Alkane								
Unknown Benzene								
Unknown Naphthalene								
Unknown								
Unknown								
Unknown								
Unknown Alkane					-	-	-	-
Unknown Alkane					1.36	J	-	-
Unknown					0.484	J	-	-
Unknown Benzene					0.419	J	-	-
Unknown Alkane					-	-	-	-
No Tentatively Identified Compounds					-		0	U
Unknown PAH					0.443	J	-	-
Unknown Alkane					0.443	J	-	-

Notes:
mg/Kg = Milligram per kilogram
U = Compound not found above concentration shown
J = Compound found below lab report limit
E= Estimated
R1 = Repeated analysis
PI = Quality assurance exceedance

TABLE 4B
Off-Site Subsurface Soil Sample Results from Soil Borings
Former Freedman and Son
Site Code 401033
Green Island, New York

				SAMPLE ID (Depth ft.)	SB-25 (0-2)		SB-25 (4-8)	
				Monitoring Well ID				
				LAB ID:	L1701908-09		L1701908-10	
				COLLECTION DATE:	1/19/2017		1/19/2017	
	Groundwater Protection Soil Cleanup Objective	IUSCO	RRSCO	UUSCO				
ANALYTE	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	Conc	Q	Conc	Q
Unknown Alkane					-	-	-	-
Unknown Naphthalene					0.467	J	-	-
Unknown					-	-	-	-
Unknown					0.372	J	-	-
Unknown Alkane					0.434	J	-	-
Unknown					1.05	J	-	-
Sulfur					-	-	-	-
Unknown Alkane					-	-	-	-
Unknown					-	-	-	-
Unknown PAH					0.657	J	-	-
Unknown PAH					0.69	J	-	-
Unknown Naphthalene					0.426	J	-	-
Unknown					-	-	-	-
Unknown PAH					1.98	J	-	-
Unknown PAH					0.749	J	-	-
Unknown					0.639	J	-	-
Unknown					-	-	-	-
Unknown					0.511	J	-	-
Unknown Alkane					0.514	J	-	-
Unknown Naphthalene					0.497	J	-	-
Unknown Naphthalene					0.67	J	-	-
Cyclic Octaatomic Sulfur					-	-	-	-
Unknown Alkane					0.389	J	-	-
Total SVOCs TICs					13.194	-	-	-

Notes:
mg/Kg = Milligram per kilogram
U = Compound not found above concentration shown
J = Compound found below lab report limit
E= Estimated
R1 = Repeated analysis
PI = Quality assurance exceedance

TABLE 4B
Off-Site Subsurface Soil Sample Results from Soil Borings
Former Freedman and Son
Site Code 401033
Green Island, New York

				SAMPLE ID (Depth ft.)	SB-25 (0-2)		SB-25 (4-8)	
				Monitoring Well ID				
				LAB ID:	L1701908-09		L1701908-10	
				COLLECTION DATE:	1/19/2017		1/19/2017	
ANALYTE	Groundwater Protection Soil Cleanup Objective (mg/kg)	IUSCO (mg/kg)	RRSCO (mg/kg)	UUSCO (mg/kg)	Conc	Q	Conc	Q
CHLORINATED HERBICIDES BY GC								
MCPP					3.82	U	3.64	U
MCPA					3.82	U	3.64	U
Dalapon					0.0382	U	0.0364	U
Dicamba					0.0382	U	0.0364	U
Dichloroprop					0.0382	U	0.0364	U
2,4-DB					0.191	U	0.182	U
Dinoseb					0.0382	U	0.0364	U
2,4-D					0.191	U	0.182	U
2,4,5-T					0.191	U	0.182	U
2,4,5-TP (Silvex)	3.8	1000	100	3.8	0.191	U	0.182	U
ORGANOCHLORINE PESTICIDES BY GC								
Delta-BHC	0.25	1000	100	0.04	0.00182	U	0.00168	U
Lindane	0.1	23	1.3	0.1	0.00076	U	0.000702	U
Alpha-BHC	0.02	6.8	0.48	0.02	0.00076	U	0.000702	U
Beta-BHC	0.09	14	0.36	0.036	0.00182	U	0.00168	U
Heptachlor	0.38	29	2.1	0.042	0.000912	U	0.000843	U
Aldrin	0.19	1.4	0.097	0.005	0.00182	U	0.00168	U
Heptachlor epoxide					0.00278	J	0.00316	U
Endrin	0.06	410	11	0.014	0.00076	U	0.000702	U
Endrin aldehyde					0.00228	U	0.00211	U
Endrin ketone					0.00182	U	0.00168	U
Dieldrin	0.1	2.8	0.2	0.005	0.00114	U	0.00105	U
4,4'-DDE	17	120	8.9	0.0033	0.00158	JPI	0.00168	U
4,4'-DDD	14	180	13	0.0033	0.00182	U	0.00168	U
4,4'-DDT	136	94	7.9	0.0033	0.0259		0.00316	U
Endosulfan I	102	920	24	2.4	0.00182	U	0.00168	U
Endosulfan II	102	920	24	2.4	0.00182	U	0.00168	U
Endosulfan sulfate	1000	920	24	2.4	0.00394	PI	0.000702	U
Methoxychlor					0.00342	U	0.00316	U
Toxaphene					0.0342	U	0.0316	U
cis-Chlordane	2.9	47	4.2	0.094	0.00228	U	0.00211	U
trans-Chlordane					0.00228	U	0.00211	U
Chlordane					0.0148	U	0.0137	U
POLYCHLORINATED BIPHENYLS BY GC								
Aroclor 1016	3.2	25	1	0.1	0.0376	U	0.036	U
Aroclor 1221	3.2	25	1	0.1	0.0376	U	0.036	U
Aroclor 1232	3.2	25	1	0.1	0.0376	U	0.036	U
Aroclor 1242	3.2	25	1	0.1	0.0376	U	0.036	U
Aroclor 1248	3.2	25	1	0.1	0.0376	U	0.036	U
Aroclor 1254	3.2	25	1	0.1	0.0162	J	0.036	U
Aroclor 1260	3.2	25	1	0.1	0.0397		0.036	U
Aroclor 1262	3.2	25	1	0.1	0.0376	U	0.036	U
Aroclor 1268	3.2	25	1	0.1	0.0376	U	0.036	U
PCBs, Total	3.2	25	1	0.1	0.0559	J	0.036	U

Notes:
mg/Kg = Milligram per kilogram
U = Compound not found above concentration shown
J = Compound found below lab report limit
E= Estimated
R1 = Repeated analysis
PI = Quality assurance exceedance

TABLE 4B
Off-Site Subsurface Soil Sample Results from Soil Borings
Former Freedman and Son
Site Code 401033
Green Island, New York

				SAMPLE ID (Depth ft.)	SB-25 (0-2)		SB-25 (4-8)	
				Monitoring Well ID				
				LAB ID:	L1701908-09		L1701908-10	
				COLLECTION DATE:	1/19/2017		1/19/2017	
ANALYTE	Groundwater Protection Soil Cleanup Objective (mg/kg)	IUSCO (mg/kg)	RRSCO (mg/kg)	UUSCO (mg/kg)	Conc	Q	Conc	Q
TOTAL METALS								
Aluminum, Total					5100		7800	
Antimony, Total					3.4	J	4.2	U
Arsenic, Total	16	16	16	13	10		3.9	
Barium, Total	820	10000	400	350	63		44	
Beryllium, Total	47	2700	72	7.2	0.32	J	0.27	J
Cadmium, Total	7.5	60	4.3	2.5	0.92	U	0.84	U
Calcium, Total					2000		980	
Chromium, Total					12		11	
Cobalt, Total					9.3		6.3	
Copper, Total	1720	10000	270	50	210		17	
Iron, Total					38000		19000	
Lead, Total	450	3900	400	63	460		7.7	
Magnesium, Total					1500		3400	
Manganese, Total	2000	10000	2000	1600	350		500	
Mercury, Total	0.73	5.7	0.81	0.18	0.95		0.04	J
Nickel, Total	130	10000	310	30	16		15	
Potassium, Total					380		550	
Selenium, Total	4	6800	180	3.9	1	J	1.7	U
Silver, Total	8.3	6800	180	2	0.92	U	0.84	U
Sodium, Total					46	J	31	J
Thallium, Total					1.8	U	1.7	U
Vanadium, Total					16		15	
Zinc, Total	2480	10000	10000	109	110		50	
GENERAL CHEMISTRY								
Solids, Total					85.7		90.8	
Cyanide, Total	40	10000	27	27	1.1	U	1	U

Notes:
mg/Kg = Milligram per kilogram
U = Compound not found above concentration shown
J = Compound found below lab report limit
E= Estimated
R1 = Repeated analysis
PI = Quality assurance exceedance

TABLE 5A
Groundwater Grab Samples From Soil Borings 2016-2017
Former Freedman and Son
Site Code #401033
Green Island, New York

		SAMPLE ID:	SB-3			SB-9			SB-10			SB-10			SB-11			SB-12			SB-13			SB-19			SB-21			SB-24		
		LAB ID:	L1641701-17			L1642026-10			L1642026-11			L1642026-11 R1			L1642026-12			L1642026-13			L1642026-14			L1702357-06			L1702357-07			L1702357-08		
		COLLECTION DATE:	12/20/2016			12/21/2016			12/21/2016			12/21/2016			12/21/2016			12/22/2016			12/22/2016			1/24/2017			1/24/2017			1/24/2017		
		SAMPLE MATRIX:	WATER			WATER			WATER			WATER			WATER			WATER			WATER			WATER			WATER			WATER		
		TOGS																														
ANALYTE	CAS	(ug/l)	Conc	Q	RL	Conc	Q	RL	Conc	Q	RL	Conc	Q	RL	Conc	Q	RL	Conc	Q	RL	Conc	Q	RL	Conc	Q	RL	Conc	Q	RL	Conc	Q	RL
VOLATILE ORGANICS BY GC/MS												-	-	-																		
Methylene chloride	75-09-2	5	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
1,1-Dichloroethane	75-34-3	5	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
Chloroform	67-66-3	7	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
Carbon tetrachloride	56-23-5	5	ND		0.5	ND		0.5	ND		1	-		-	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5
1,2-Dichloropropane	78-87-5	NA	ND		1	ND		1	ND		2	-		-	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
Dibromochloromethane	124-48-1	50	ND		0.5	ND		0.5	ND		1	-		-	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5
1,1,2-Trichloroethane	79-00-5	NA	ND		1.5	ND		1.5	ND		3	-		-	ND		1.5	ND		1.5	ND		1.5	ND		1.5	ND		1.5	ND		1.5
Tetrachloroethene	127-18-4	5	ND		0.5	ND		0.5	ND		1	-		-	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5
Chlorobenzene	108-90-7	5	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
Trichlorofluoromethane	75-69-4	NA	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	3.2		2.5	ND		2.5
1,2-Dichloroethane	107-06-2	5	ND		0.5	ND		0.5	ND		1	-		-	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5
1,1,1-Trichloroethane	71-55-6	5	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
Bromodichloromethane	75-27-4	NA	ND		0.5	ND		0.5	ND		1	-		-	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5
trans-1,3-Dichloropropene	10061-02-6	NA	ND		0.5	ND		0.5	ND		1	-		-	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5
cis-1,3-Dichloropropene	10061-01-5	NA	ND		0.5	ND		0.5	ND		1	-		-	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5
Bromoform	75-25-2	NA	ND		2	ND		2	ND		4	-		-	ND		2	ND		2	ND		2	ND		2	ND		2	ND		2
1,1,2,2-Tetrachloroethane	79-34-5	5	ND		0.5	ND		0.5	ND		1	-		-	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5
Benzene	71-43-2	0.7	ND		0.5	ND		0.5	ND		1	-		-	ND		0.5	ND		0.5	ND		0.5	ND		0.5	0.96		0.5	ND		0.5
Toluene	108-88-3	5	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
Ethylbenzene	100-41-4	5	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
Chloromethane	74-87-3	NA	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	1.1	J	2.5
Bromomethane	74-83-9	NA	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
Vinyl chloride	75-01-4	2	ND		1	ND		1	ND		2	-		-	ND		1	ND		1	0.4	J	1	ND		1	ND		1	ND		1
Chloroethane	75-00-3	50	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
1,1-Dichloroethene	75-35-4	5	ND		0.5	ND		0.5	ND		1	-		-	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5
trans-1,2-Dichloroethene	156-60-5	5	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
Trichloroethene	79-01-6	5	ND		0.5	ND		0.5	ND		1	-		-	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5
1,2-Dichlorobenzene	95-50-1	4.7	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
1,3-Dichlorobenzene	541-73-1	5	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
1,4-Dichlorobenzene	106-46-7	5	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
Methyl tert butyl ether	1634-04-4	10	ND		2.5	ND		2.5	1.6	J	5	-		-	ND		2.5	3.2		2.5	1.3	J	2.5	**20**		**2.5**	1.7	J	2.5	ND		2.5
p/m-Xylene	179601-23-1	NA	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
o-Xylene	95-47-6	NA	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
cis-1,2-Dichloroethene	156-59-2	NA	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
Styrene	100-42-5	NA	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
Dichlorodifluoromethane	75-71-8	NA	ND		5	ND		5	ND		10	-		-	ND		5	ND		5	ND		5	ND		5	2.3	J	5	ND		5
Acetone	67-64-1	50	24		5	5.4		5	570	E	10	540		50	8.3		5	21		5	11		5	ND		5	34		5	31		5
Carbon disulfide	75-15-0	50	ND		5	ND		5	ND		10	-		-	ND		5	ND		5	ND		5	2	J	5	ND		5	ND		5
2-Butanone	78-93-3	50	ND		5	ND		5	ND		10	-		-	ND		5	ND		5	ND		5	ND		5	ND		5	4.1	J	5
4-Methyl-2-pentanone	108-10-1	50	ND		5	ND		5	ND		10	-		-	ND		5	ND		5	ND		5	ND		5	ND		5	ND		5
2-Hexanone	591-78-6	NA	ND		5	ND		5	ND		10	-		-	ND		5	ND		5	ND		5	ND		5	ND		5	ND		5
Bromochloromethane	74-97-5	NA	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
1,2-Dibromoethane	106-93-4	NA	ND		2	ND		2	ND		4	-		-	ND		2	ND		2	ND		2	ND		2	ND		2	ND		2
1,2-Dibromo-3-chloropropane	96-12-8	NA	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
Isopropylbenzene	98-82-8	5	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
1,2,3-Trichlorobenzene	87-61-6	NA	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
1,2,4-Trichlorobenzene	120-82-1	5	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
Methyl Acetate	79-20-9	NA	ND		2	ND		2	ND		4	-		-	ND		2	ND		2	ND		2	ND		2	ND		2	ND		2
Cyclohexane	110-82-7	NA	ND		10	ND		10	ND		20	-		-	ND		10	ND		10	ND		10	ND		10	ND		10	ND		10
1,4-Dioxane	123-91-1	NA	ND		250	ND		250	ND		500	-		-	ND		250	ND		250	ND		250	ND		250	ND		250	ND		250
Freon-113	76-13-1	5	ND		2.5	ND		2.5	ND		5	-		-	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5	ND		2.5
Methyl cyclohexane	108-87-2	NA	ND		10	ND		10	ND		20	-		-	ND		10	ND		10	ND		10	ND		10	ND		10	ND		10
Total VOCs			24	-	-	5.4	-	-	571.6	-	-	540	-	-	8.3	-	-	24.2	-	-	12.7	-	-	22	-	-	42.16	-	-	36.2	-	-
Total TIC Compounds		NA	-		-	-		-	-		-	-	-	-	1.41	J	0	1.53	J	0	3.74	J	0	158	J	0	119.81	J	0	-		-

Notes:
ug/L = micrograms per liter.
ND = Compound not detected above reporting limit (RL)
J = Compound found below RL.
E = Est. concentration.
Shaded cells indicate result is greater than guidance level or standard.

TABLE 5B
Groundwater Sample Results From Monitoring Wells 2017
Former Freedman and Son
Site Code # 401033
Green Island, New York

	SAMPLE ID:	MW-1 020317		MW-2 020617		MW-2 DUP 020617		MW-3 020217		MW-4 020617		MW-5 020217		MW-6 020117		MW-7 020117		MW-8 020217		PES-2 020217		EQUIP. BLANK		TRIP BLANK		TRIP BLANK
	COLLECTION DATE:	2/3/2017		2/6/2017		2/6/2017		2/2/2017		2/6/2017		2/2/2017		2/1/2017		2/1/2017		2/2/2017		2/2/2017		2/3/2017		2/1/2017		2/2/2017
ANALYTE	(ug/l)	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc
VOLATILE ORGANICS BY GC/MS	NY-AWQS	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)
Methylene chloride	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
1,1-Dichloroethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Chloroform	7	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Carbon tetrachloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
1,2-Dichloropropane	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1
Dibromochloromethane	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
1,1,2-Trichloroethane	1	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5
Tetrachloroethene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
Chlorobenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	1.6	J	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Trichlorofluoromethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
1,2-Dichloroethane	0.6	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
1,1,1-Trichloroethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Bromodichloromethane	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
trans-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
cis-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
Bromoform	50	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2
1,1,2,2-Tetrachloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
Benzene	1	0.5	U	0.5	U	0.5	U	0.5	U	4.9		0.19	J	0.5	U	0.5	U	0.54		0.5	U	0.5	U	0.5	U	0.5
Toluene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Ethylbenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Chloromethane		2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Bromomethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Vinyl chloride	2	1	U	1	U	1	U	0.87	J	0.64	J	1	U	1	U	1	U	0.46	J	1	U	1	U	1	U	1
Chloroethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	0.8	J	2.5	U	2.5	U	2.5	U	2.5
1,1-Dichloroethene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
trans-1,2-Dichloroethene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Trichloroethene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5
1,2-Dichlorobenzene	3	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
1,3-Dichlorobenzene	3	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
1,4-Dichlorobenzene	3	2.5	U	2.5	U	2.5	U	2.5	U	1.9	J	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Methyl tert butyl ether	10	2.5	U	5.2		5.3		6.1		9.8		1.9	J	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
p/m-Xylene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.6		2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
o-Xylene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
cis-1,2-Dichloroethene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Styrene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Dichlorodifluoromethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5
Acetone	50	5	U	1.6	J	1.5	J	5	U	2.5	J	22		5	U	5	U	5	U	5	U	5	U	5	U	5
Carbon disulfide	60	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5
2-Butanone	50	5	U	5	U	5	U	5	U	5	U	3.7	J	5	U	5	U	5	U	5	U	5	U	5	U	5
4-Methyl-2-pentanone		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5
2-Hexanone	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5
Bromochloromethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
1,2-Dibromoethane	0.0006	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2
1,2-Dibromo-3-chloropropane	0.04	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Isopropylbenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
1,2,3-Trichlorobenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
1,2,4-Trichlorobenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Methyl Acetate		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2
Cyclohexane		10	U	10	U	10	U	10	U	0.29	J	0.57	J	10	U	10	U	10	U	10	U	10	U	10	U	10
1,4-Dioxane		250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250
Freon-113	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Methyl cyclohexane		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10
Total VOCs																										
Total TIC Compounds		-	-	-	-	-	-	-	-	96.5	J	10.6	J	-	-	4.62	J	25.5	J	-	-	12.6	J	-	-	1.54

Notes
ug/L = Micrograms per liter
U = Compound not found > the the value shown
J = Compound found at a concentration below the lab reporting limit

TABLE 5B
Groundwater Sample Results From Monitoring Wells 2017
Former Freedman and Son
Site Code # 401033
Green Island, New York

	SAMPLE ID:	MW-1 020317		MW-2 020617		MW-2 DUP 020617		MW-3 020217		MW-4 020617		MW-5 020217		MW-6 020117		MW-7 020117		MW-8 020217		PES-2 020217		EQUIP. BLANK		TRIP BLANK		TRIP BLANK
	COLLECTION DATE:	2/3/2017		2/6/2017		2/6/2017		2/2/2017		2/6/2017		2/2/2017		2/1/2017		2/1/2017		2/2/2017		2/2/2017		2/3/2017		2/1/2017		2/2/2017
ANALYTE	**(ug/l)**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**
SEMIVOLATILE ORGANICS BY GC/MS																										
Bis(2-chloroethyl)ether	1	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-		-
3,3'-Dichlorobenzidine	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
2,4-Dinitrotoluene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
2,6-Dinitrotoluene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
4-Chlorophenyl phenyl ether		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-		-
4-Bromophenyl phenyl ether		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-		-
Bis(2-chloroisopropyl)ether	5	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-		-
Bis(2-chloroethoxy)methane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
Hexachlorocyclopentadiene	5	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	-		-
Isophorone	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
Nitrobenzene	0.4	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-		-
NDPA/DPA	50	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-		-
n-Nitrosodi-n-propylamine		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
Bis(2-ethylhexyl)phthalate	5	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	-		-
Butyl benzyl phthalate	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
Di-n-butylphthalate	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
Di-n-octylphthalate	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
Diethyl phthalate	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
Dimethyl phthalate	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
Biphenyl		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-		-
4-Chloroaniline	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
2-Nitroaniline	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
3-Nitroaniline	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
4-Nitroaniline	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
Dibenzofuran		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-		-
1,2,4,5-Tetrachlorobenzene	5	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	-		-
Acetophenone		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
2,4,6-Trichlorophenol		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
p-Chloro-m-cresol		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-		-
2-Chlorophenol		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-		-
2,4-Dichlorophenol	1	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
2,4-Dimethylphenol	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
2-Nitrophenol		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	-		-
4-Nitrophenol		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	-		-
2,4-Dinitrophenol	10	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	-		-
4,6-Dinitro-o-cresol		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	-		-
Phenol	1	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
3-Methylphenol/4-Methylphenol		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
2,4,5-Trichlorophenol		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
Carbazole		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-		-
Atrazine	7.5	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	-		-
Benzaldehyde		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
Caprolactam		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	-		-
2,3,4,6-Tetrachlorophenol		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-		-
Total SVOCs		-		10.57		15.64		5.07		175.49		58.79		39.4		21.63		38.3		-		-		-		-

Notes
ug/L = Micrograms per liter
U = Compound not found > the the value shown
J = Compound found at a concentration below the lab reporting limit

TABLE 5B
Groundwater Sample Results From Monitoring Wells 2017
Former Freedman and Son
Site Code # 401033
Green Island, New York

	SAMPLE ID:	MW-1 020317		MW-2 020617		MW-2 DUP 020617		MW-3 020217		MW-4 020617		MW-5 020217		MW-6 020117		MW-7 020117		MW-8 020217		PES-2 020217		EQUIP. BLANK		TRIP BLANK		TRIP BLANK
	COLLECTION DATE:	2/3/2017		2/6/2017		2/6/2017		2/2/2017		2/6/2017		2/2/2017		2/1/2017		2/1/2017		2/2/2017		2/2/2017		2/3/2017		2/1/2017		2/2/2017
ANALYTE	(ug/l)	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc
SEMIVOLATILE ORGANICS BY GC/MS-SIM																										
Acenaphthene	20	0.1	U	0.1	U	0.1	U	0.1	U	0.58		0.1	U	0.1	U	0.1	U	0.1		0.1	U	0.1	U	-		-
2-Chloronaphthalene	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	-		-
Fluoranthene	50	0.2	U	0.2	U	0.2	U	0.2	U	0.21		0.04	J	0.04	J	0.2	U	0.13	J	0.2	U	0.2	U	-		-
Hexachlorobutadiene	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	-		-
Naphthalene	10	0.25		0.2	U	0.2	U	0.2	U	1		0.06	J	0.05	J	0.11	J	0.2	U	0.35		0.06	J	-		-
Benzo(a)anthracene	0.002	0.2	U	0.2	U	0.2	U	0.2	U	0.03	J	0.2	U	0.04	J	0.2	U	0.1	J	0.2	U	0.2	U	-		-
Benzo(a)pyrene	0	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.11	J	0.2	U	0.2	U	-		-
Benzo(b)fluoranthene	0.002	0.2	U	0.2	U	0.2	U	0.2	U	0.02	J	0.2	U	0.03	J	0.2	U	0.18	J	0.2	U	0.2	U	-		-
Benzo(k)fluoranthene	0.002	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.07	J	0.2	U	0.2	U	-		-
Chrysene	0.002	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.13	J	0.2	U	0.2	U	-		-
Acenaphthylene		0.2	U	0.2	U	0.2	U	0.2	U	0.06	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	-		-
Anthracene	50	0.04	J	0.05	J	0.06	J	0.06	J	0.15	J	0.12	J	0.04	J	0.2	U	0.2	U	0.2	U	0.2	U	-		-
Benzo(ghi)perylene		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.08	J	0.2	U	0.2	U	-		-
Fluorene	50	0.2	U	0.2	U	0.2	U	0.2	U	0.35		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	-		-
Phenanthrene	50	0.2	U	0.05	J	0.04	J	0.04	J	0.55		0.27		0.05	J	0.04	J	0.04	J	0.2	U	0.2	U	-		-
Dibenzo(a,h)anthracene		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	-		-
Indeno(1,2,3-cd)pyrene	0.002	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.09	J	0.2	U	0.2	U	-		-
Pyrene	50	0.2	U	0.2	U	0.2	U	0.2	U	0.13	J	0.2	U	0.04	J	0.2	U	0.12	J	0.2	U	0.2	U	-		-
2-Methylnaphthalene		0.2	U	0.2	U	0.2	U	0.2	U	0.54		0.2	U	0.05	J	0.05	J	0.2	U	0.2	U	0.2	U	-		-
Pentachlorophenol	1	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.35	J	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	-	-	-
Hexachlorobenzene	0.04	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	-	-	-
Hexachloroethane	5	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	-	-	-
Total SVOCs																								-		-
Total TIC Compounds		-		10.57		15.64		5.07		175.49		58.79		39.4		21.63		38.3		-		-		-		-
CHLORINATED HERBICIDES BY GC																										
2,4-D	50	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	-		-
2,4,5-T	35	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-		-
2,4,5-TP (Silvex)		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-		-
ORGANOCHLORINE PESTICIDES BY GC																										
Delta-BHC	0.04	0.021	U	0.02	U	0.021	U	0.02	U	0.02	U	0.02	U	0.021	U	0.02	U	0.021	U	0.021	U	0.02	U	-		-
Lindane	0.05	0.021	U	0.02	U	0.021	U	0.02	U	0.02	U	0.02	U	0.021	U	0.02	U	0.021	U	0.021	U	0.02	U	-		-
Alpha-BHC	0.01	0.021	U	0.02	U	0.021	U	0.02	U	0.02	U	0.02	U	0.021	U	0.02	U	0.021	U	0.021	U	0.02	U	-		-
Beta-BHC	0.04	0.021	U	0.02	U	0.021	U	0.02	U	0.02	U	0.02	U	0.021	U	0.02	U	0.021	U	0.021	U	0.02	U	-		-
Heptachlor	0.04	0.021	U	0.02	U	0.021	U	0.02	U	0.02	U	0.015	JPI	0.021	U	0.02	U	0.021	U	0.021	U	0.02	U	-		-
Aldrin	0	0.021	U	0.02	U	0.021	U	0.02	U	0.02	U	0.02	U	0.021	U	0.02	U	0.021	U	0.021	U	0.02	U	-		-
Heptachlor epoxide	0.03	0.021	U	0.02	U	0.021	U	0.02	U	0.02	U	0.02	U	0.021	U	0.02	U	0.021	U	0.021	U	0.02	U	-		-
Endrin	0	0.043	U	0.04	U	0.042	U	0.04	U	0.041	U	0.04	U	0.042	U	0.04	U	0.043	U	0.042	U	0.04	U	-		-
Endrin aldehyde	5	0.043	U	0.04	U	0.042	U	0.04	U	0.041	U	0.04	U	0.042	U	0.04	U	0.043	U	0.042	U	0.04	U	-		-
Endrin ketone	5	0.043	U	0.04	U	0.042	U	0.04	U	0.041	U	0.04	U	0.042	U	0.04	U	0.043	U	0.042	U	0.04	U	-		-
Dieldrin	0.004	0.043	U	0.04	U	0.042	U	0.04	U	0.041	U	0.04	U	0.042	U	0.04	U	0.043	U	0.042	U	0.04	U	-		-
4,4'-DDE	0.2	0.043	U	0.04	U	0.042	U	0.04	U	0.041	U	0.04	U	0.042	U	0.04	U	0.043	U	0.042	U	0.04	U	-		-
4,4'-DDD	0.3	0.043	U	0.04	U	0.042	U	0.04	U	0.041	U	0.04	U	0.042	U	0.04	U	0.043	U	0.042	U	0.04	U	-		-
4,4'-DDT	0.2	0.043	U	0.04	U	0.042	U	0.04	U	0.041	U	0.04	U	0.042	U	0.04	U	0.043	U	0.042	U	0.04	U	-		-
Endosulfan I		0.021	U	0.02	U	0.021	U	0.02	U	0.02	U	0.02	U	0.021	U	0.02	U	0.021	U	0.021	U	0.02	U	-		-
Endosulfan II		0.043	U	0.04	U	0.042	U	0.04	U	0.041	U	0.04	U	0.042	U	0.04	U	0.043	U	0.042	U	0.04	U	-		-
Endosulfan sulfate		0.043	U	0.04	U	0.042	U	0.04	U	0.041	U	0.04	U	0.042	U	0.04	U	0.043	U	0.042	U	0.04	U	-		-
Methoxychlor	35	0.213	U	0.2	U	0.208	U	0.2	U	0.204	U	0.2	U	0.208	U	0.2	U	0.213	U	0.208	U	0.2	U	-		-
Toxaphene	0.06	0.213	U	0.2	U	0.208	U	0.2	U	0.204	U	0.2	U	0.208	U	0.2	U	0.213	U	0.208	U	0.2	U	-		-
cis-Chlordane		0.021	U	0.02	U	0.021	U	0.02	U	0.02	U	0.02	U	0.021	U	0.02	U	0.021	U	0.021	U	0.02	U	-		-
trans-Chlordane		0.021	U	0.02	U	0.021	U	0.02	U	0.02	U	0.02	U	0.021	U	0.02	U	0.021	U	0.021	U	0.02	U	-		-
Chlordane	0.05	0.213	U	0.2	U	0.208	U	0.2	U	0.204	U	0.2	U	0.208	U	0.2	U	0.213	U	0.208	U	0.2	U	-		-
POLYCHLORINATED BIPHENYLS BY GC																										
Aroclor 1016	0.09	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	-		-
Aroclor 1221	0.09	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	-		-
Aroclor 1232	0.09	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	-		-
Aroclor 1242	0.09	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	-		-
Aroclor 1248	0.09	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	-		-
Aroclor 1254	0.09	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	-		-
Aroclor 1260	0.09	0.083	U	0.083	U	0.083	U	0.046	J	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	-		-
Aroclor 1262	0.09	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	-		-
Aroclor 1268	0.09	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	-		-
PCBs, Total		0.083	U	0.083	U	0.083	U	0.046	J	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	0.083	U	-		-

Notes
ug/L = Micrograms per liter
U = Compound not found > the the value shown
J = Compound found at a concentration below the lab reporting limit

TABLE 5B
Groundwater Sample Results From Monitoring Wells 2017
Former Freedman and Son
Site Code # 401033
Green Island, New York

	SAMPLE ID:	MW-1 020317		MW-2 020617		MW-2 DUP 020617		MW-3 020217		MW-4 020617		MW-5 020217		MW-6 020117		MW-7 020117		MW-8 020217		PES-2 020217		EQUIP. BLANK		TRIP BLANK		TRIP BLANK
	COLLECTION DATE:	2/3/2017		2/6/2017		2/6/2017		2/2/2017		2/6/2017		2/2/2017		2/1/2017		2/1/2017		2/2/2017		2/2/2017		2/3/2017		2/1/2017		2/2/2017
ANALYTE	(ug/l)	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc
TOTAL METALS																										
Aluminum, Total		131		625		672		79.4		88.4		53.2		278		2560		12.7		39.9		10	U	-		-
Antimony, Total	3	4	U	2.52	J	0.82	J	4	U	0.91	J	0.54	J	4	U	0.84	J	4	U	4	U	0.48	J	-		-
Arsenic, Total	25	4.09		5.19		5.53		9.8		24.95		2.8		1.96		6.74		0.63		0.34	J	0.5	U	-		-
Barium, Total	1000	170.1		137.1		137.6		230.2		270		84.42		96.52		370.7		133		52.62		0.5	U	-		-
Beryllium, Total	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.17	J	0.5	U	0.5	U	0.5	U	-		-
Cadmium, Total	5	0.26		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.18	J	0.2	U	0.2	U	0.2	U	-		-
Calcium, Total		83800		82700		89900		109000		128000		80300		83800		73800		84400		56500		100	U	-		-
Chromium, Total	50	0.63	J	1.69		1.49		0.24	J	1.23		0.2	J	0.89	J	3.97		0.44	J	1.7		0.21	J	-		-
Cobalt, Total		4.55		0.65		0.75		0.26	J	0.21	J	0.7		0.3	J	3.67		0.5	U	0.76		0.5	U	-		-
Copper, Total	200	2.45		1.38		1.41		0.47	J	0.76	J	0.56	J	8.78		19.04		0.47	J	0.84	J	1	U	-		-
Iron, Total	300	4290		3600		3780		11800		12100		3090		9940		10500		567		289		50	U	-		-
Lead, Total	25	1.02		1		1.37		0.39	J	0.68	J	0.41	J	4.41		11.34		1	U	1	U	1	U	-		-
Magnesium, Total	35000	9490		15700		16700		17500		29200		17700		10600		13100		14500		7990		70	U	-		-
Manganese, Total	300	4670		2137		2243		1275		3420		2628		873.3		1204		2637		1825		1	U	-		-
Mercury, Total	0.7	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	-		-
Nickel, Total	100	6.45		3.07		3.03		2.01		2.73		3.19		1.61	J	8.91		0.92	J	3.51		2	U	-		-
Potassium, Total		10300		13100		14000		12200		21800		23400		5780		5130		12000		4690		100	U	-		-
Selenium, Total	10	5	U	2.83	J	2.43	J	5	U	3.42	J	5	U	5	U	5	U	5	U	5	U	5	U	-		-
Silver, Total	50	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	-		-
Sodium, Total	20000	33700		115000		119000		120000		158000		89800		49000		64700		32000		40000		100	U	-		-
Thallium, Total	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	-		-
Vanadium, Total		5	U	5	U	5	U	5	U	5	U	5	U	5	U	4.7	J	5	U	5	U	5	U	-		-
Zinc, Total	2000	6.6	J	11.92		4.25	J	10	U	10	U	10	U	11.93		37.19		4.5	J	3.51	J	10	U	-		-
GENERAL CHEMISTRY																										
Cyanide, Total	200	5	U	3	J	2	J	5	U	4	J	3	J	5	U	5	U	3	J	5	U	5	U	-		-
1,4 DIOXANE BY 8270D-SIM																										
1,4-Dioxane		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
PERFLUORINATED ALKYL ACIDS BY ISOTOPE DILUTION																										
Perfluorobutanoic Acid (PFBA)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluoropentanoic Acid (PFPeA)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluorobutanesulfonic Acid (PFBS)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluorohexanoic Acid (PFHxA)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluoroheptanoic Acid (PFHpA)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluorohexanesulfonic Acid (PFHxS)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluorooctanoic Acid (PFOA)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluoroheptanesulfonic Acid (PFHpS)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluorononanoic Acid (PFNA)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluorooctanesulfonic Acid (PFOS)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluorodecanoic Acid (PFDA)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluoroundecanoic Acid (PFUnA)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluorodecanesulfonic Acid (PFDS)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluorooctanesulfonamide (FOSA)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluorododecanoic Acid (PFDoA)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluorotridecanoic Acid (PFTrDA)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
Perfluorotetradecanoic Acid (PFTA)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
PFOA/PFOS, Total		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-
PFAS, Total (5)		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		-		-		-

Notes
ug/L = Micrograms per liter
U = Compound not found > the the value shown
J = Compound found at a concentration below the lab reporting limit

TABLE 5B
Groundwater Sample Results From Monitoring Wells 2017
Former Freedman and Son
Site Code # 401033
Green Island, New York

	SAMPLE ID:		**TRIP BLANK**	
	COLLECTION DATE:		**2/3/2017**	
ANALYTE	**(ug/l)**	**Q**	**Conc**	**Q**
VOLATILE ORGANICS BY GC/MS	**NY-AWQS**		**(ug/l)**	
Methylene chloride	5	U	2.5	U
1,1-Dichloroethane	5	U	2.5	U
Chloroform	7	U	2.5	U
Carbon tetrachloride	5	U	0.5	U
1,2-Dichloropropane	1	U	1	U
Dibromochloromethane	50	U	0.5	U
1,1,2-Trichloroethane	1	U	1.5	U
Tetrachloroethene	5	U	0.5	U
Chlorobenzene	5	U	2.5	U
Trichlorofluoromethane	5	U	2.5	U
1,2-Dichloroethane	0.6	U	0.5	U
1,1,1-Trichloroethane	5	U	2.5	U
Bromodichloromethane	50	U	0.5	U
trans-1,3-Dichloropropene	0.4	U	0.5	U
cis-1,3-Dichloropropene	0.4	U	0.5	U
Bromoform	50	U	2	U
1,1,2,2-Tetrachloroethane	5	U	0.5	U
Benzene	1	U	0.5	U
Toluene	5	U	2.5	U
Ethylbenzene	5	U	2.5	U
Chloromethane		U	2.5	U
Bromomethane	5	U	2.5	U
Vinyl chloride	2	U	1	U
Chloroethane	5	U	2.5	U
1,1-Dichloroethene	5	U	0.5	U
trans-1,2-Dichloroethene	5	U	2.5	U
Trichloroethene	5	U	0.5	U
1,2-Dichlorobenzene	3	U	2.5	U
1,3-Dichlorobenzene	3	U	2.5	U
1,4-Dichlorobenzene	3	U	2.5	U
Methyl tert butyl ether	10	U	2.5	U
p/m-Xylene	5	U	2.5	U
o-Xylene	5	U	2.5	U
cis-1,2-Dichloroethene	5	U	2.5	U
Styrene	5	U	2.5	U
Dichlorodifluoromethane	5	U	5	U
Acetone	50	U	5	U
Carbon disulfide	60	U	5	U
2-Butanone	50	U	5	U
4-Methyl-2-pentanone		U	5	U
2-Hexanone	50	U	5	U
Bromochloromethane	5	U	2.5	U
1,2-Dibromoethane	0.0006	U	2	U
1,2-Dibromo-3-chloropropane	0.04	U	2.5	U
Isopropylbenzene	5	U	2.5	U
1,2,3-Trichlorobenzene	5	U	2.5	U
1,2,4-Trichlorobenzene	5	U	2.5	U
Methyl Acetate		U	2	U
Cyclohexane		U	10	U
1,4-Dioxane		U	250	U
Freon-113	5	U	2.5	U
Methyl cyclohexane		U	10	U
Total VOCs				
Total TIC Compounds		J	-	-

Notes
ug/L = Micrograms per liter
U = Compound not found > the the value shown
J = Compound found at a concentration below the lab reporting limit

TABLE 5B
Groundwater Sample Results From Monitoring Wells 2017
Former Freedman and Son
Site Code # 401033
Green Island, New York

	SAMPLE ID:		TRIP BLANK	
	COLLECTION DATE:		2/3/2017	
ANALYTE	(ug/l)	Q	Conc	Q
SEMIVOLATILE ORGANICS BY GC/MS				
Bis(2-chloroethyl)ether	1		-	
3,3'-Dichlorobenzidine	5		-	
2,4-Dinitrotoluene	5		-	
2,6-Dinitrotoluene	5		-	
4-Chlorophenyl phenyl ether			-	
4-Bromophenyl phenyl ether			-	
Bis(2-chloroisopropyl)ether	5		-	
Bis(2-chloroethoxy)methane	5		-	
Hexachlorocyclopentadiene	5		-	
Isophorone	50		-	
Nitrobenzene	0.4		-	
NDPA/DPA	50		-	
n-Nitrosodi-n-propylamine			-	
Bis(2-ethylhexyl)phthalate	5		-	
Butyl benzyl phthalate	50		-	
Di-n-butylphthalate	50		-	
Di-n-octylphthalate	50		-	
Diethyl phthalate	50		-	
Dimethyl phthalate	50		-	
Biphenyl			-	
4-Chloroaniline	5		-	
2-Nitroaniline	5		-	
3-Nitroaniline	5		-	
4-Nitroaniline	5		-	
Dibenzofuran			-	
1,2,4,5-Tetrachlorobenzene	5		-	
Acetophenone			-	
2,4,6-Trichlorophenol			-	
p-Chloro-m-cresol			-	
2-Chlorophenol			-	
2,4-Dichlorophenol	1		-	
2,4-Dimethylphenol	50		-	
2-Nitrophenol			-	
4-Nitrophenol			-	
2,4-Dinitrophenol	10		-	
4,6-Dinitro-o-cresol			-	
Phenol	1		-	
3-Methylphenol/4-Methylphenol			-	
2,4,5-Trichlorophenol			-	
Carbazole			-	
Atrazine	7.5		-	
Benzaldehyde			-	
Caprolactam			-	
2,3,4,6-Tetrachlorophenol			-	
Total SVOCs			-	

Notes
ug/L = Micrograms per liter
U = Compound not found > the the value shown
J = Compound found at a concentration below the lab reporting limit

TABLE 5B
Groundwater Sample Results From Monitoring Wells 2017
Former Freedman and Son
Site Code # 401033
Green Island, New York

	SAMPLE ID:		TRIP BLANK	
	COLLECTION DATE:		2/3/2017	
ANALYTE	(ug/l)	Q	Conc	Q
SEMIVOLATILE ORGANICS BY GC/MS-SIM			-	
Acenaphthene	20		-	
2-Chloronaphthalene	10		-	
Fluoranthene	50		-	
Hexachlorobutadiene	0.5		-	
Naphthalene	10		-	
Benzo(a)anthracene	0.002		-	
Benzo(a)pyrene	0		-	
Benzo(b)fluoranthene	0.002		-	
Benzo(k)fluoranthene	0.002		-	
Chrysene	0.002		-	
Acenaphthylene			-	
Anthracene	50		-	
Benzo(ghi)perylene			-	
Fluorene	50		-	
Phenanthrene	50		-	
Dibenzo(a,h)anthracene			-	
Indeno(1,2,3-cd)pyrene	0.002		-	
Pyrene	50		-	
2-Methylnaphthalene			-	
Pentachlorophenol	1		-	
Hexachlorobenzene	0.04		-	
Hexachloroethane	5		-	
Total SVOCs			-	
Total TIC Compounds			-	
CHLORINATED HERBICIDES BY GC			-	
2,4-D	50		-	
2,4,5-T	35		-	
2,4,5-TP (Silvex)			-	
ORGANOCHLORINE PESTICIDES BY GC			-	
Delta-BHC	0.04		-	
Lindane	0.05		-	
Alpha-BHC	0.01		-	
Beta-BHC	0.04		-	
Heptachlor	0.04		-	
Aldrin	0		-	
Heptachlor epoxide	0.03		-	
Endrin	0		-	
Endrin aldehyde	5		-	
Endrin ketone	5		-	
Dieldrin	0.004		-	
4,4'-DDE	0.2		-	
4,4'-DDD	0.3		-	
4,4'-DDT	0.2		-	
Endosulfan I			-	
Endosulfan II			-	
Endosulfan sulfate			-	
Methoxychlor	35		-	
Toxaphene	0.06		-	
cis-Chlordane			-	
trans-Chlordane			-	
Chlordane	0.05		-	
POLYCHLORINATED BIPHENYLS BY GC			-	
Aroclor 1016	0.09		-	
Aroclor 1221	0.09		-	
Aroclor 1232	0.09		-	
Aroclor 1242	0.09		-	
Aroclor 1248	0.09		-	
Aroclor 1254	0.09		-	
Aroclor 1260	0.09		-	
Aroclor 1262	0.09		-	
Aroclor 1268	0.09		-	
PCBs, Total			-	

Notes
ug/L = Micrograms per liter
U = Compound not found > the the value shown
J = Compound found at a concentration below the lab reporting limit

TABLE 5B
Groundwater Sample Results From Monitoring Wells 2017
Former Freedman and Son
Site Code # 401033
Green Island, New York

	SAMPLE ID:		**TRIP BLANK**	
	COLLECTION DATE:		**2/3/2017**	
ANALYTE	**(ug/l)**	**Q**	**Conc**	**Q**
TOTAL METALS			-	
Aluminum, Total			-	
Antimony, Total	3		-	
Arsenic, Total	25		-	
Barium, Total	1000		-	
Beryllium, Total	3		-	
Cadmium, Total	5		-	
Calcium, Total			-	
Chromium, Total	50		-	
Cobalt, Total			-	
Copper, Total	200		-	
Iron, Total	300		-	
Lead, Total	25		-	
Magnesium, Total	35000		-	
Manganese, Total	300		-	
Mercury, Total	0.7		-	
Nickel, Total	100		-	
Potassium, Total			-	
Selenium, Total	10		-	
Silver, Total	50		-	
Sodium, Total	20000		-	
Thallium, Total	0.5		-	
Vanadium, Total			-	
Zinc, Total	2000		-	
GENERAL CHEMISTRY			-	
Cyanide, Total	200		-	
1,4 DIOXANE BY 8270D-SIM			-	
1,4-Dioxane			-	
PERFLUORINATED ALKYL ACIDS BY ISOTOPE DILUTION			-	
Perfluorobutanoic Acid (PFBA)			-	
Perfluoropentanoic Acid (PFPeA)			-	
Perfluorobutanesulfonic Acid (PFBS)			-	
Perfluorohexanoic Acid (PFHxA)			-	
Perfluoroheptanoic Acid (PFHpA)			-	
Perfluorohexanesulfonic Acid (PFHxS)			-	
Perfluorooctanoic Acid (PFOA)			-	
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)			-	
Perfluoroheptanesulfonic Acid (PFHpS)			-	
Perfluorononanoic Acid (PFNA)			-	
Perfluorooctanesulfonic Acid (PFOS)			-	
Perfluorodecanoic Acid (PFDA)			-	
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)			-	
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)			-	
Perfluoroundecanoic Acid (PFUnA)			-	
Perfluorodecanesulfonic Acid (PFDS)			-	
Perfluorooctanesulfonamide (FOSA)			-	
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)			-	
Perfluorododecanoic Acid (PFDoA)			-	
Perfluorotridecanoic Acid (PFTrDA)			-	
Perfluorotetradecanoic Acid (PFTA)			-	
PFOA/PFOS, Total			-	
PFAS, Total (5)			-	

Notes
ug/L = Micrograms per liter
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J = Compound found at a concentration below the lab reporting limit

TABLE 6
Groundwater Sample Results From Monitoring Wells 2019
Former Freedman and Son
Site Code # 401033
Green Island, New York

	SAMPLE ID:	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6		MW-7		PES-2		DUP		FIELD BLANK		TRIP BLANK	
	COLLECTION DATE:	2/6/2019		2/6/2019		2/6/2019		2/6/2019		2/7/2019		2/6/2019		2/6/2019		2/7/2019		2/6/2019		2/6/2019		2/6/2019	
ANALYTE	(ug/l)	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
VOLATILE ORGANICS BY GC/MS	NY-AWQS	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Methylene chloride	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,1-Dichloroethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Chloroform	7	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Carbon tetrachloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	1	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	1	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Tetrachloroethene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	5	2.5	U	2.5	U	2.5	U	1.8	J	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Trichlorofluoromethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,2-Dichloroethane	0.6	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Bromodichloromethane	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	50	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
1,1,2,2-Tetrachloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene	1	0.5	U	0.5	U	0.5	U	2.5		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Ethylbenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Chloromethane		2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Bromomethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Vinyl chloride	2	1	U	1	U	0.3	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,1-Dichloroethene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,2-Dichloroethene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Trichloroethene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichlorobenzene	3	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,3-Dichlorobenzene	3	2.5	U	2.5	U	2.5	U	1.4	J	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,4-Dichlorobenzene	3	2.5	U	2.5	U	2.5	U	5.9		2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Methyl tert butyl ether	10	2.5	U	4.8		2.5		5		6		2.5	U	2.5	U	2.5	U	4.8		2.5	U	2.5	U
p/m-Xylene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
o-Xylene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
cis-1,2-Dichloroethene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Styrene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Dichlorodifluoromethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Carbon disulfide	60	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
2-Hexanone	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromochloromethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,2-Dibromoethane	0.0006	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
1,2-Dibromo-3-chloropropane	0.04	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Isopropylbenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,2,3-Trichlorobenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,2,4-Trichlorobenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Methyl Acetate		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Cyclohexane		10	U	10	U	10	U	0.33	J	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,4-Dioxane	1	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U
Freon-113	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Methyl cyclohexane		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Total VOCs		-	-	4.8	-	2.8	-	16.93	-	6	-	-	-	-	-	-	-	4.8	-	-	-	-	-
Total TIC Compounds		-		1.51	J	4.13	J	43.1	J	2.43	J	-		-		-	-	1.56	J	-		-	

Notes
ug/L = Micrograms per liter
U = Compound not found > the the value shown
J = Compound found at a concentration below the lab reporting limit

TABLE 6
Groundwater Sample Results From Monitoring Wells 2019
Former Freedman and Son
Site Code # 401033
Green Island, New York

	SAMPLE ID:	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6		MW-7		PES-2		DUP		FIELD BLANK		TRIP BLANK	
	COLLECTION DATE:	2/6/2019		2/6/2019		2/6/2019		2/6/2019		2/7/2019		2/6/2019		2/6/2019		2/7/2019		2/6/2019		2/6/2019		2/6/2019	
ANALYTE	(ug/l)	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
SEMIVOLATILE ORGANICS BY GC/MS																							
Bis(2-chloroethyl)ether	1	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-	
3,3'-Dichlorobenzidine	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
2,4-Dinitrotoluene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
2,6-Dinitrotoluene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
4-Chlorophenyl phenyl ether		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-	
4-Bromophenyl phenyl ether		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-	
Bis(2-chloroisopropyl)ether	5	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-	
Bis(2-chloroethoxy)methane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
Hexachlorocyclopentadiene	5	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	-	
Isophorone	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
Nitrobenzene	0.4	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-	
NDPA/DPA	50	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-	
n-Nitrosodi-n-propylamine		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
Bis(2-ethylhexyl)phthalate	5	3	U	3	U	3	U	3.6		3	U	1.5	J	3	U	3	U	3	U	3	U	-	
Butyl benzyl phthalate	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
Di-n-butylphthalate	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
Di-n-octylphthalate	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
Diethyl phthalate	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
Dimethyl phthalate	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
Biphenyl		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-	
4-Chloroaniline	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
2-Nitroaniline	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
3-Nitroaniline	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
4-Nitroaniline	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
Dibenzofuran		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-	
1,2,4,5-Tetrachlorobenzene	5	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	-	
Acetophenone		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
2,4,6-Trichlorophenol		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
p-Chloro-m-cresol		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-	
2-Chlorophenol		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-	
2,4-Dichlorophenol	1	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
2,4-Dimethylphenol	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
2-Nitrophenol		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	-	
4-Nitrophenol		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	-	
2,4-Dinitrophenol	10	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	-	
4,6-Dinitro-o-cresol		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	-	
Phenol	1	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
3-Methylphenol/4-Methylphenol		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
2,4,5-Trichlorophenol		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
Carbazole		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-	
Atrazine	7.5	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	-	
Benzaldehyde		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
Caprolactam		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	-	
2,3,4,6-Tetrachlorophenol		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
Total SVOCs		-	-	-	-	-	-	3.6	-	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-

Notes
ug/L = Micrograms per liter
U = Compound not found > the the value shown
J = Compound found at a concentration below the lab reporting limit

TABLE 6
Groundwater Sample Results From Monitoring Wells 2019
Former Freedman and Son
Site Code # 401033
Green Island, New York

	SAMPLE ID:	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6		MW-7		PES-2		DUP		FIELD BLANK		TRIP BLANK	
	COLLECTION DATE:	2/6/2019		2/6/2019		2/6/2019		2/6/2019		2/7/2019		2/6/2019		2/6/2019		2/7/2019		2/6/2019		2/6/2019		2/6/2019	
ANALYTE	(ug/l)	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
SEMIVOLATILE ORGANICS BY GC/MS-SIM																							
Acenaphthene	20	0.1	U	0.1	U	0.1	U	0.28		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	-	
2-Chloronaphthalene	10	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.03	J	0.2	U	0.2	U	0.2	U	0.2	U	-	
Fluoranthene	50	0.1	U	0.06	J	0.1	U	0.24		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	-	
Hexachlorobutadiene	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	-	
Naphthalene	10	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	-	
Benzo(a)anthracene	0.002	0.1	U	0.06	J	0.1	U	0.12		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	-	
Benzo(a)pyrene	0	0.1	U	0.05	J	0.1	U	0.09	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	-	
Benzo(b)fluoranthene	0.002	0.1	U	0.07	J	0.1	U	0.15		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	-	
Benzo(k)fluoranthene	0.002	0.1	U	0.06	J	0.1	U	0.06	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	-	
Chrysene	0.002	0.1	U	0.05	J	0.1	U	0.09	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	-	
Acenaphthylene		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	-	
Anthracene	50	0.1	U	0.06	J	0.1	U	0.07	J	0.05	J	0.1	U	0.1	U	0.1	U	0.04	J	0.1	U	-	
Benzo(ghi)perylene		0.1	U	0.05	J	0.1	U	0.03	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	-	
Fluorene	50	0.03	J	0.04	J	0.1	U	0.22		0.1	U	0.02	J	0.1	U	0.1	U	0.1	U	0.1	U	-	
Phenanthrene	50	0.1	U	0.07	J	0.1	U	0.1	J	0.1	U	0.1	U	0.1	U	0.1	U	0.03	J	0.1	U	-	
Dibenzo(a,h)anthracene		0.1	U	0.06	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	-	
Indeno(1,2,3-cd)pyrene	0.002	0.1	U	0.07	J	0.1	U	0.03	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	-	
Pyrene	50	0.1	U	0.06	J	0.1	U	0.35		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	-	
2-Methylnaphthalene		0.03	J	0.02	J	0.1	U	0.1	U	0.1	U	0.02	J	0.1	U	0.1	U	0.1	U	0.1	U	-	
Pentachlorophenol	1	0.8	U	0.33	J	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	-	
Hexachlorobenzene	0.04	0.8	U	0.08	J	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	-	
Hexachloroethane	5	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	-	
Total SVOCs		0.06	-	1.19	-	-	-	1.83	-	0.05	-	0.07	-	-	-	-	-	0.07	-	-	-	-	-
Total TIC Compounds		31.5	J	37.9	J	31.9	J	113	J	47.8	J	29.2	J	31.6	J	26.9	J	44.9	J	52.8	J	-	
CHLORINATED HERBICIDES BY GC																							
2,4-D	50	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	-	
2,4,5-T	35	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-	
2,4,5-TP (Silvex)		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	-	
ORGANOCHLORINE PESTICIDES BY GC																							
Delta-BHC	0.04	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	-	
Lindane	0.05	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	-	
Alpha-BHC	0.01	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	-	
Beta-BHC	0.04	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	-	
Heptachlor	0.04	0.002	JIP	0.014	U	0.014	U	0.007	J	0.004	J	0.014	U	0.014	U	0.003	JIP	0.014	U	0.002	J	-	
Aldrin	0	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	-	
Heptachlor epoxide	0.03	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	-	
Endrin	0	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	-	
Endrin aldehyde	5	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	-	
Endrin ketone	5	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	-	
Dieldrin	0.004	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	-	
4,4'-DDE	0.2	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	-	
4,4'-DDD	0.3	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	-	
4,4'-DDT	0.2	0.018	JP	0.029	U	0.029	U	0.029	U	0.029	U	0.004	J	0.005	J	0.029	U	0.029	U	0.029	U	-	
Endosulfan I		0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	-	
Endosulfan II		0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	-	
Endosulfan sulfate		0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	-	
Methoxychlor	35	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	-	
Toxaphene	0.06	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	-	
cis-Chlordane		0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	-	
trans-Chlordane		0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	-	
Chlordane	0.05	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	0.143	U	-	
POLYCHLORINATED BIPHENYLS BY GC																							
Aroclor 1016	0.09	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	-	
Aroclor 1221	0.09	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	-	
Aroclor 1232	0.09	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	-	
Aroclor 1242	0.09	0.082	U	0.082	U	0.082	U	0.346		0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	-	
Aroclor 1248	0.09	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	-	
Aroclor 1254	0.09	0.082	U	0.082	U	0.082	U	0.178		0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	-	
Aroclor 1260	0.09	0.082	U	0.082	U	0.082	U	0.06	J	0.054	J	0.082	U	0.082	U	0.032	JP	0.082	U	0.04	J	-	
Aroclor 1262	0.09	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	-	
Aroclor 1268	0.09	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	0.082	U	-	
PCBs, Total		0.082	U	0.082	U	0.082	U	0.584	J	0.054	J	0.082	U	0.082	U	0.032	J	0.082	U	0.04	J	-	

Notes
ug/L = Micrograms per liter
U = Compound not found > the the value shown
J = Compound found at a concentration below the lab reporting limit

TABLE 6
Groundwater Sample Results From Monitoring Wells 2019
Former Freedman and Son
Site Code # 401033
Green Island, New York

	SAMPLE ID:	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6		MW-7		PES-2		DUP		FIELD BLANK		TRIP BLANK	
	COLLECTION DATE:	2/6/2019		2/6/2019		2/6/2019		2/6/2019		2/7/2019		2/6/2019		2/6/2019		2/7/2019		2/6/2019		2/6/2019		2/6/2019	
ANALYTE	**(ug/l)**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**
TOTAL METALS																							
Aluminum, Total		64.9		32.3		241		26.9		12.3		48.9		385		13.9		18.9		10	U	-	
Antimony, Total	3	4.33		4.36		1.41	J	0.73	J	4	U	4.55		1.3	J	4	U	0.67	J	0.77	J	-	
Arsenic, Total	25	4.62		3.68		12		7.29		1.46		0.67		4.64		0.2	J	4		0.5	U	-	
Barium, Total	1000	104.9		115.2		182.5		235.3		57.04		75.14		586.1		44.97		112.5		0.5	U	-	
Beryllium, Total	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	-	
Cadmium, Total	5	0.31		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	-	
Calcium, Total		118000		71300		110000		49600		48700		33000		116000		45300		74100		100	U	-	
Chromium, Total	50	0.21	J	0.22	J	0.64	J	0.62	J	1	U	0.23	J	0.73	J	0.21	J	0.3	J	1	U	-	
Cobalt, Total		4.62		0.16	J	0.51		0.5	U	0.57		0.5	U	0.83		0.42	J	0.17	J	0.5	U	-	
Copper, Total	200	1.14		1	U	2.87		1	U	0.41	J	0.86	J	3.22		0.44	J	1	U	1	U	-	
Iron, Total	300	5790		2020		14800		24400		2140		1930		6640		126		2070		37.5	J	-	
Lead, Total	25	0.42	J	1	U	1.04		0.37	J	1	U	1.38		1.96		1	U	1	U	1	U	-	
Magnesium, Total	35000	14900		12600		16100		9240		12500		4160		16700		6810		13200		70	U	-	
Manganese, Total	300	6262		2004		1248		5926		3807		453.4		1758		354.5		2041		2.86		-	
Mercury, Total	0.7	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	-	
Nickel, Total	100	6.69		0.8	J	1.7	J	0.81	J	1.22	J	2	U	1.64	J	0.91	J	0.65	J	2	U	-	
Potassium, Total		8820		9820		11900		16300		11600		5540		6270		4130		10200		46.4	J	-	
Selenium, Total	10	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
Silver, Total	50	0.4	U	0.36	J	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	-	
Sodium, Total	20000	45800		60000		61400		99100		47100		23600		79100		33500		62700		63.3	J	-	
Thallium, Total	0.5	0.28	J	0.37	J	0.5	U	0.5	U	0.5	U	0.26	J	0.5	U	0.5	U	0.5	U	0.5	U	-	
Vanadium, Total		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
Zinc, Total	2000	4.37	J	10	U	10	U	10	U	10	U	10	U	23.1		10	U	10	U	10	U	-	
GENERAL CHEMISTRY																							
Cyanide, Total	200	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	-	
1,4 DIOXANE BY 8270D-SIM																							
1,4-Dioxane	1	0.142	U	0.142	U	NA		NA		NA		NA		0.319		NA		0.139	U	0.144	U	-	
PERFLUORINATED ALKYL ACIDS BY ISOTOPE DILUTION																							
Perfluorobutanoic Acid (PFBA)		0.129		0.0281		NA		NA		NA		NA		0.0273		NA		0.0305		0.00188	U	-	
Perfluoropentanoic Acid (PFPeA)		0.413		0.0889		NA		NA		NA		NA		0.0576		NA		0.101		0.00188	U	-	
Perfluorobutanesulfonic Acid (PFBS)		0.0209		0.0356		NA		NA		NA		NA		0.062		NA		0.0359		0.00188	U	-	
Perfluorohexanoic Acid (PFHxA)		0.168		0.0545		NA		NA		NA		NA		0.0366		NA		0.0604		0.00188	U	-	
Perfluoroheptanoic Acid (PFHpA)		0.0712		0.0347		NA		NA		NA		NA		0.0243		NA		0.0414		0.00188	U	-	
Perfluorohexanesulfonic Acid (PFHxS)		0.0248		0.0273		NA		NA		NA		NA		0.0234		NA		0.0313		0.00188	U	-	
Perfluorooctanoic Acid (PFOA)	0.001	0.134		0.102		NA		NA		NA		NA		0.064		NA		0.109		0.00188	U	-	
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)		0.00672		0.0258		NA		NA		NA		NA		0.016		NA		0.0225		0.00188	U	-	
Perfluoroheptanesulfonic Acid (PFHpS)		0.000996	J	0.00236		NA		NA		NA		NA		0.00169	J	NA		0.00298		0.00188	U	-	
Perfluorononanoic Acid (PFNA)		0.0202		0.0103		NA		NA		NA		NA		0.00347		NA		0.0106		0.00188	U	-	
Perfluorooctanesulfonic Acid (PFOS)	0.001	0.0429		0.136		NA		NA		NA		NA		0.0768		NA		0.132		0.00188	U	-	
Perfluorodecanoic Acid (PFDA)		0.00191		0.00312		NA		NA		NA		NA		0.00121	J	NA		0.0032		0.00188	U	-	
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)		0.000386	J	0.00337		NA		NA		NA		NA		0.00185	U	NA		0.00358		0.00188	U	-	
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)		0.00177	U	0.00328		NA		NA		NA		NA		0.000744	J	NA		0.0028		0.000395	J	-	
Perfluoroundecanoic Acid (PFUnA)		0.00177	U	0.000448	J	NA		NA		NA		NA		0.00185	U	NA		0.000404	J	0.00188	U	-	
Perfluorodecanesulfonic Acid (PFDS)		0.00177	U	0.00179	U	NA		NA		NA		NA		0.00185	U	NA		0.00178	U	0.00188	U	-	
Perfluorooctanesulfonamide (FOSA)		0.00177	U	0.00131	J	NA		NA		NA		NA		0.00185	U	NA		0.001	J	0.00188	U	-	
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)		0.00044	J	0.00207		NA		NA		NA		NA		0.0005	J	NA		0.00115	J	0.000451	J	-	
Perfluorododecanoic Acid (PFDoA)		0.00177	U	0.00179	U	NA		NA		NA		NA		0.00185	U	NA		0.00178	U	0.00188	U	-	
Perfluorotridecanoic Acid (PFTrDA)		0.00177	U	0.00179	U	NA		NA		NA		NA		0.00185	U	NA		0.00178	U	0.00188	U	-	
Perfluorotetradecanoic Acid (PFTA)		0.00177	U	0.00179	U	NA		NA		NA		NA		0.00185	U	NA		0.00178	U	0.00188	U	-	
PFOA/PFOS, Total		0.177		0.238		NA		NA		NA		NA		0.141		NA		0.241		0.00188	U	-	
PFAS, Total (5)		0.293		0.31		NA		NA		NA		NA		0.192		NA		0.324		0.00188	U	-	

Notes
ug/L = Micrograms per liter
U = Compound not found > the the value shown
J = Compound found at a concentration below the lab reporting limit

TABLE 7
Groundwater Parameter Results
Former Freedman Son
Site Code # 401033
Green Island, New York

Well #	MW-1	MW-1	MW-2	MW-2	MW-3	MW-3	MW-4	MW-4	MW-5	MW-5	MW-6	MW-6	MW-7	MW-7	MW-8	MW-8	PES-2	PES-2
Date	2/1/2017	2/6/2019	2/1/2017	2/6/2019	2/1/2017	2/6/2019	2/1/2017	2/6/2019	2/1/2017	2/6/2019	2/1/2017	2/6/2019	2/1/2017	2/6/2019	2/1/2017	2/6/2019	2/1/2017	2/6/2019
Turbidity (NTU)	8.4	27.53	15.9	13.8	2.1	48.2	12.8	5.7	17.9	5.7	16.8	49.8	13.8	43.7	0	NS	21.3	1.97
Dissolved Oxygen mg/L	0	0.41	0	0	0	0.21	0	0.86	0	-0.04	0	0.48	0	0.55	0	NS	0	0.57
Specific Conductance micro Siemens/cm	0.682	0.939	0.985	0.781	1.21	1.07	1.92	1.01	1.1	0.705	0.748	0.296	0.717	1.14	0.668	NS	0.544	0.48
pH	6.4	6.72	7.6	7.5	4.1	6.89	7.81	6.89	3.5	7.12	7.14	7.8	4.62	7.54	5.07	NS	6.97	7.85
Temperature deg. C.	8.67	7.8	9.63	7.3	9.06	8.8	7.81	6.8	7.73	5	10.53	4.4	13.1	8.5	6.64	NS	8.18	7.2
Oxidation-Reduction Potential millivolts	-51	10.7	-68	105	8	-59.2	-16	-87.1	26	-35.6	-18	-118.2	0	114.5	-52	NS	-56	26.8

Table 8 – Monitoring Well Construction Details

Monitoring Well ID	Well Location	Coordinates (longitude/ latitude)	Well Dia. (inches)	Elevation (above mean sea level)			
				Casing	Surface	Screen Top	Screen Bottom
MW-1	Down-gradient	42.74906551N, -73.69235W	2	31.426	28.617	23.617	13.617
MW-2	Mid-site	42.75056378N, -73.69205W	2	29.904	27.269	22.269	12.269
MW-3	Down-gradient	42.749295023N, -73.6920013W,	2	30.776	27.975	22.975	12.975
MW-4	Mid-site	42.7502948N, -73.69256W	2	30.331	27.423	21.423	15.423
MW-5	Mid-site	42.7510824N, -73.69191W	2	30.467	27.338	23.338	18.338
MW-6	Down-gradient	42.7517905N, -73.69174	2	26.941	26.188	20.688	3.688
MW-7	Up-gradient	42.75144405N, -73.69189W	2	28.032	27.752	21.752	11.752

MW-8	Up-gradient	42.7510398N, -73.69239732W	2	28.591	28.919	24.619	20.619
PES-2	Down-gradient	42.7512872N, -73.69085165W	2	26.988	27.274	Un-Known	15.574

TABLE 9
Soil Vapor Sample Results
Freedman and Son
Site Code #401033
Green Island, New York

	SAMPLE ID:	AMBIENT AIR			VAPOR POINT-1			VAPOR POINT-2			VAPOR POINT-3			VAPOR POINT-3		
	LAB ID:	L1702748-01			L1702748-04			L1702748-03			L1702748-02			L1702748-02 R1		
	COLLECTION DATE:	1/26/2017			1/26/2017			1/26/2017			1/26/2017			1/26/2017		
	SAMPLE DEPTH:															
	SAMPLE MATRIX:			AIR			AIR			AIR			AIR			AIR
	AIR-UGM3															
ANALYTE	(ug/m3)	Conc	Q	RL	Conc	Q	RL	Conc	Q	RL	Conc	Q	RL	Conc	Q	RL
VOLATILE ORGANICS IN AIR														-	-	-
Dichlorodifluoromethane	0.25	2.17		0.989	81.6		1.98	114		4.94	51.4		19.7	-	-	-
Chloromethane	0.25	1.18		0.413	ND		0.826	ND		2.07	ND		8.22	-		-
Freon-114	0.25	ND		1.4	ND		2.8	ND		6.99	ND		27.8	-		-
Vinyl chloride	0.25	ND		0.511	ND		1.02	ND		2.56	153		10.2	-	-	-
1,3-Butadiene	0.25	ND		0.442	1.42		0.885	ND		2.21	ND		8.8	-		-
Bromomethane	0.25	ND		0.777	ND		1.55	ND		3.88	ND		15.5	-		-
Chloroethane	0.25	ND		0.528	ND		1.06	ND		2.64	ND		10.5	-		-
Ethanol	0.25	26.6		9.42	25.6		18.8	ND		47.1	ND		187	-		-
Vinyl bromide	0.25	ND		0.874	ND		1.75	ND		4.37	ND		17.4	-		-
Acetone	0.25	17.1		2.38	299		4.75	394		11.9	ND		47.3	-		-
Trichlorofluoromethane	0.25	1.52		1.12	635		2.25	43.8		5.62	ND		22.4	-		-
Isopropanol	0.25	2.26		1.23	ND		2.46	ND		6.15	ND		24.5	-		-
1,1-Dichloroethene	0.25	ND		0.793	ND		1.59	ND		3.96	ND		15.8	-		-
Tertiary butyl Alcohol	NA	ND		1.52	3.79		3.03	ND		7.58	ND		30.2	-		-
Methylene chloride	0.25	ND		1.74	ND		3.47	ND		8.69	ND		34.6	-		-
3-Chloropropene	0.25	ND		0.626	ND		1.25	ND		3.13	ND		12.5	-		-
Carbon disulfide	0.25	ND		0.623	17.2		1.25	11		3.11	ND		12.4	-		-
Freon-113	0.25	ND		1.53	ND		3.07	ND		7.66	ND		30.5	-		-
trans-1,2-Dichloroethene	0.25	ND		0.793	ND		1.59	ND		3.96	ND		15.8	-		-
1,1-Dichloroethane	0.25	ND		0.809	ND		1.62	ND		4.05	ND		16.1	-		-
Methyl tert butyl ether	0.25	ND		0.721	ND		1.44	ND		3.61	ND		14.3	-		-
2-Butanone	0.25	ND		1.47	84.6		2.95	96.1		7.37	64.6		29.3	-	-	-
cis-1,2-Dichloroethene	0.25	ND		0.793	ND		1.59	ND		3.96	ND		15.8	-		-
Ethyl Acetate	0.25	ND		1.8	ND		3.6	ND		9.01	ND		35.9	-		-
Chloroform	0.25	ND		0.977	ND		1.95	ND		4.88	ND		19.4	-		-
Tetrahydrofuran	0.25	ND		1.47	3.75		2.95	ND		7.37	ND		29.3	-		-
1,2-Dichloroethane	0.25	ND		0.809	ND		1.62	ND		4.05	ND		16.1	-		-
n-Hexane	0.25	0.997		0.705	5.6		1.41	7.05		3.52	101		14	-	-	-
1,1,1-Trichloroethane	0.25	ND		1.09	ND		2.18	ND		5.46	ND		21.7	-		-
Benzene	0.25	1.01		0.639	8.79		1.28	ND		3.19	18.6		12.7	-	-	-
Carbon tetrachloride	0.25	ND		1.26	ND		2.52	ND		6.29	ND		25	-		-
Cyclohexane	0.25	ND		0.688	13		1.38	12.5		3.44	157		13.7	-	-	-
1,2-Dichloropropane	0.25	ND		0.924	ND		1.85	ND		4.62	ND		18.4	-		-
Bromodichloromethane	0.25	ND		1.34	ND		2.68	ND		6.7	ND		26.7	-		-
1,4-Dioxane	0.25	ND		0.721	ND		1.44	ND		3.6	ND		14.3	-		-
Trichloroethene	0.25	ND		1.07	ND		2.15	ND		5.37	ND		21.4	-		-
2,2,4-Trimethylpentane	0.25	ND		0.934	ND		1.87	359		4.67	13300	E	18.6	11200		46.6

Notes
ND = Not detected above method detection limit
RL = Laboratory reporting limit
Q = Qualifier

TABLE 9
Soil Vapor Sample Results
Freedman and Son
Site Code #401033
Green Island, New York

	SAMPLE ID:	**AMBIENT AIR**			**VAPOR POINT-1**			**VAPOR POINT-2**			**VAPOR POINT-3**			**VAPOR POINT-3**		
	LAB ID:	**L1702748-01**			**L1702748-04**			**L1702748-03**			**L1702748-02**			**L1702748-02 R1**		
	COLLECTION DATE:	**1/26/2017**			**1/26/2017**			**1/26/2017**			**1/26/2017**			**1/26/2017**		
	SAMPLE DEPTH:															
	SAMPLE MATRIX:			**AIR**			**AIR**			**AIR**			**AIR**			**AIR**
	AIR-UGM3															
ANALYTE	**(ug/m3)**	**Conc**	**Q**	**RL**	**Conc**	**Q**	**RL**	**Conc**	**Q**	**RL**	**Conc**	**Q**	**RL**	**Conc**	**Q**	**RL**
Heptane	0.25	ND		0.82	4.14		1.64	4.88		4.1	31.5		16.3	-	-	-
cis-1,3-Dichloropropene	0.25	ND		0.908	ND		1.82	ND		4.54	ND		18.1	-		-
4-Methyl-2-pentanone	0.25	ND		2.05	ND		4.1	ND		10.2	ND		40.8	-		-
trans-1,3-Dichloropropene	0.25	ND		0.908	ND		1.82	ND		4.54	ND		18.1	-		-
1,1,2-Trichloroethane	0.25	ND		1.09	ND		2.18	ND		5.46	ND		21.7	-		-
Toluene	0.25	1.49		0.754	10.9		1.51	8.52		3.77	15.8		15	-	-	-
2-Hexanone	0.25	ND		0.82	16.8		1.64	16.3		4.1	ND		16.3	-		-
Dibromochloromethane	0.25	ND		1.7	ND		3.41	ND		8.52	ND		33.9	-		-
1,2-Dibromoethane	0.25	ND		1.54	ND		3.07	ND		7.69	ND		30.6	-		-
Tetrachloroethene	0.25	ND		1.36	ND		2.71	ND		6.78	ND		27	-		-
Chlorobenzene	0.25	ND		0.921	ND		1.84	ND		4.61	ND		18.3	-		-
Ethylbenzene	0.25	ND		0.869	2.28		1.74	ND		4.34	ND		17.3	-		-
p/m-Xylene	0.25	ND		1.74	8.99		3.47	ND		8.69	ND		34.6	-		-
Bromoform	0.25	ND		2.07	ND		4.14	ND		10.3	ND		41.2	-		-
Styrene	0.25	ND		0.852	ND		1.7	ND		4.26	ND		16.9	-		-
1,1,2,2-Tetrachloroethane	0.25	ND		1.37	ND		2.75	ND		6.87	ND		27.3	-		-
o-Xylene	0.25	ND		0.869	3.99		1.74	ND		4.34	ND		17.3	-		-
4-Ethyltoluene	0.25	ND		0.983	ND		1.97	ND		4.92	ND		19.6	-		-
1,3,5-Trimethylbenzene	0.25	ND		0.983	ND		1.97	ND		4.92	ND		19.6	-		-
1,2,4-Trimethylbenzene	0.25	ND		0.983	5.31		1.97	ND		4.92	ND		19.6	-		-
Benzyl chloride	0.25	ND		1.04	ND		2.07	ND		5.18	ND		20.6	-		-
1,3-Dichlorobenzene	0.25	ND		1.2	ND		2.4	ND		6.01	ND		23.9	-		-
1,4-Dichlorobenzene	0.25	ND		1.2	ND		2.4	ND		6.01	ND		23.9	-		-
1,2-Dichlorobenzene	0.25	ND		1.2	ND		2.4	ND		6.01	ND		23.9	-		-
1,2,4-Trichlorobenzene	0.25	ND		1.48	ND		2.97	ND		7.42	ND		29.5	-		-
Hexachlorobutadiene	0.25	ND		2.13	ND		4.27	ND		10.7	ND		42.5	-		-

Notes
ND = Not detected above method detection limit
RL = Laboratory reporting limit
Q = Qualifier

FIGURES

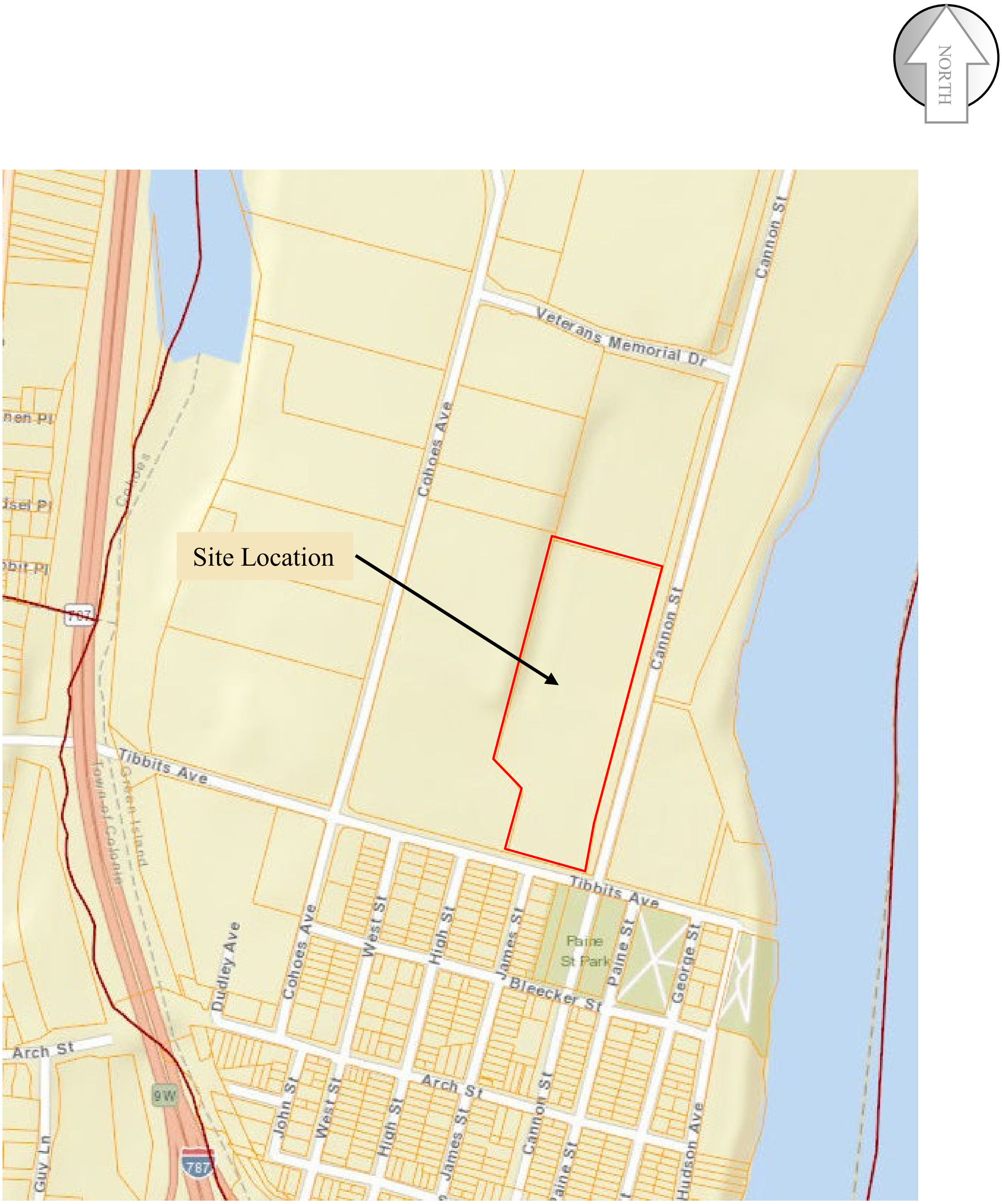
NORTH

Title	Site Location Former Freedman & Son Property Green Island, NY
Prepared For	Eastern Metal Recycling, LLC 143 Harding Avenue, 1st Floor Bellmawr, New Jersey 08031

Leader

Leader Professional Services
271 Marsh Road, Suite 2
Pittsford, NY 14534
(585) 248-2413
FAX (585) 248-2834

Project	842.002
Date	07/01/20
Scale	As Shown
Drawn	PVS
Checked	MPR
File Name	SMP
Figure	1

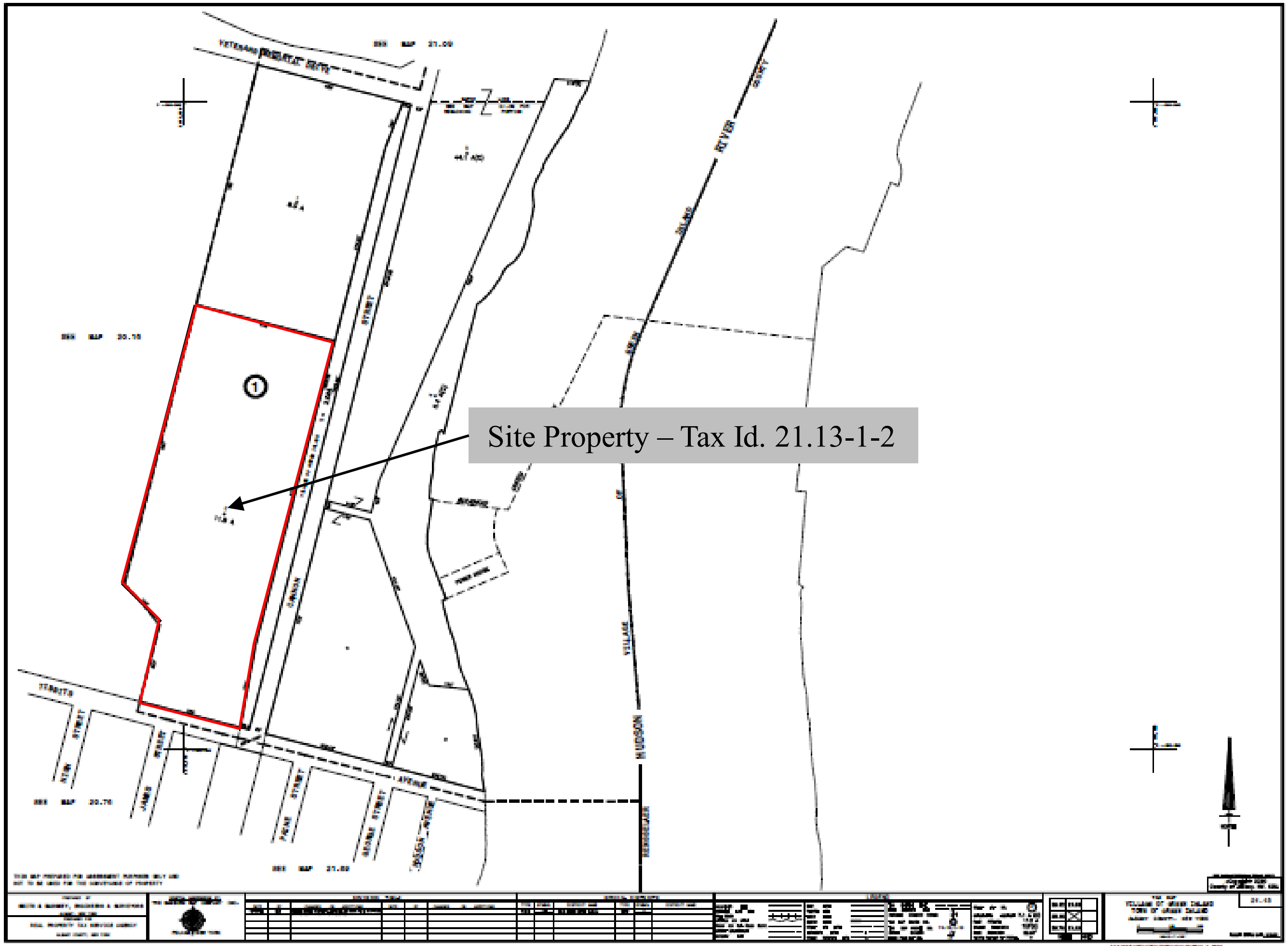


Title	Site Location and Property Boundaries Former Freedman & Son Property Green Island, NY
Prepared For	Eastern Metal Recycling, LLC 143 Harding Avenue, 1st Floor Bellmawr, New Jersey 08031

Leader

Leader Professional Services
271 Marsh Road, Suite 2
Pittsford, NY 14534
(585) 248-2413
FAX (585) 248-2834

Project	842.002
Date	07/01/20
Scale	As Shown
Drawn	PVS
Checked	MPR
File Name	SMP
Figure	2

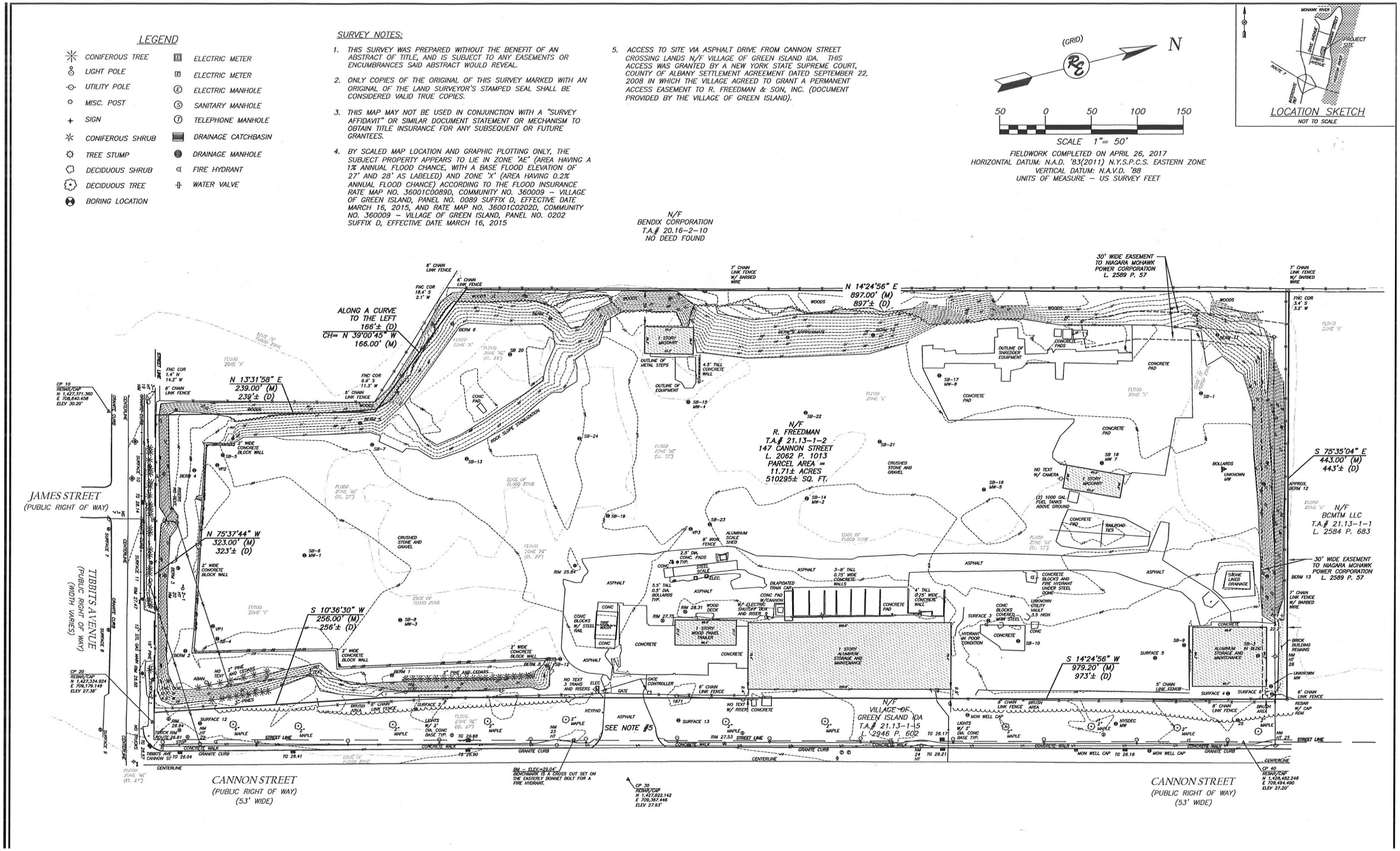


Title	Tax Map for Site Property Former Freedman & Son Property Green Island, New York
Prepared For	Eastern Metal Recycling, LLC 143 Harding Avenue, 1st Floor Bellmawr, New Jersey

Leader

Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project	842.002
Date	7/1/20
Scale	As shown
Drawn	PVS
Checked	MPR
File Name	SMP
Figure	3



Title	Site Plan and Sampling Locations Former Freedman & Son Property Green Island, New York
Prepared For	Eastern Metal Recycling, LLC 143 Harding Avenue, 1st Floor Bellmawr, New Jersey

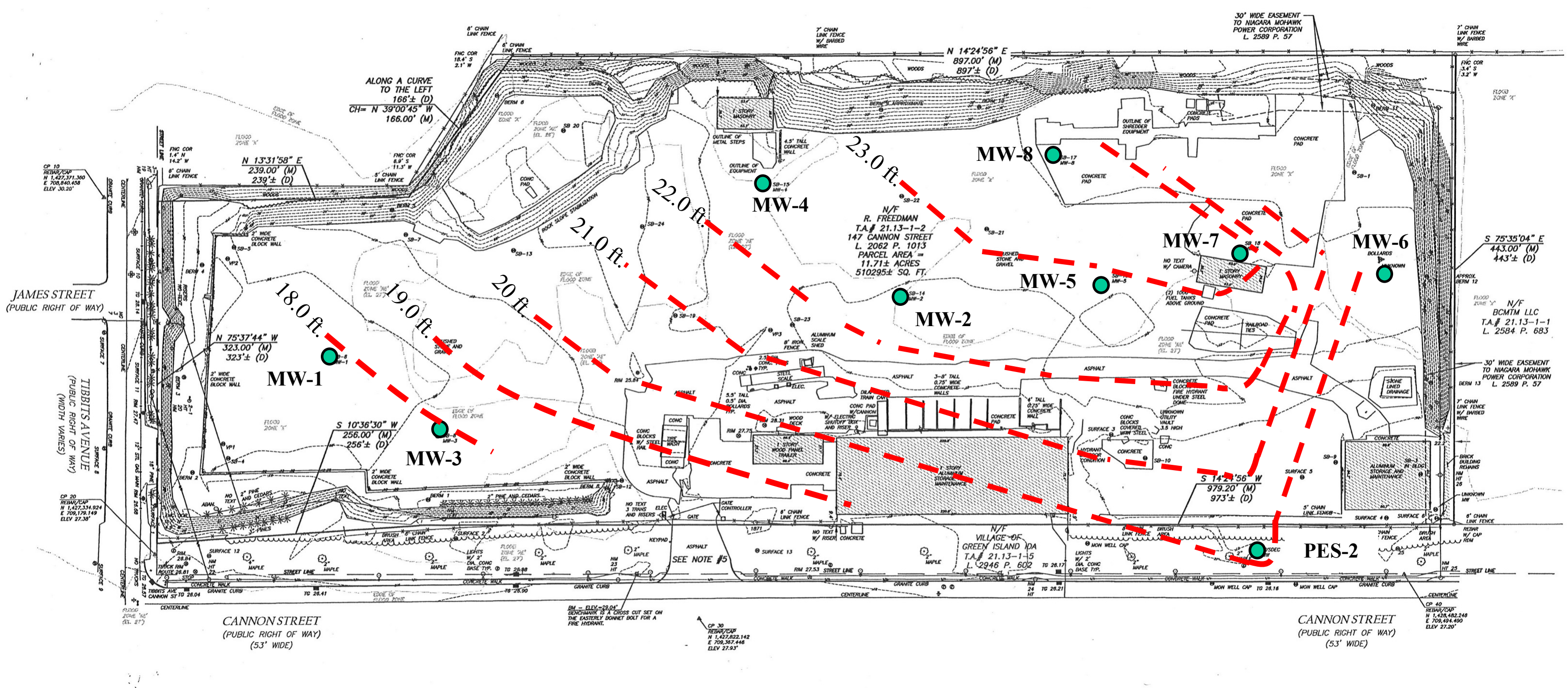
Leader

Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project	842.002
Date	7/1/20
Scale	As shown
Drawn	PVS
Checked	MPR
File Name	SMP
Figure	4

	1-Feb-17								
	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	PES-2
Elevation of Cap/Casing N.A.D. 1988	31.426	29.904	30.776	30.331	30.467	26.941	28.032	28.591	26.988
Elv. Ground Surface N.A.D. 1988	28.617	27.269	27.975	27.423	27.338	26.188	27.752	28.919	27.274
Depth to Groundwater in feet	13.64	7.35	13.08	7.9	7.64	7.61	4.86	5.05	7.05
Groundwater Elv. From Cap/Casing	17.786	22.554	17.696	22.431	22.827	19.331	23.172	23.541	19.938

North



Title
Groundwater Surface Contour Map
Former Freedman and Son Property
Green Island, NY

Prepared For
Eastern Metal Recycling, LLC
143 Harding Avenue, 1st Floor
Bellmawr, New Jersey 08031

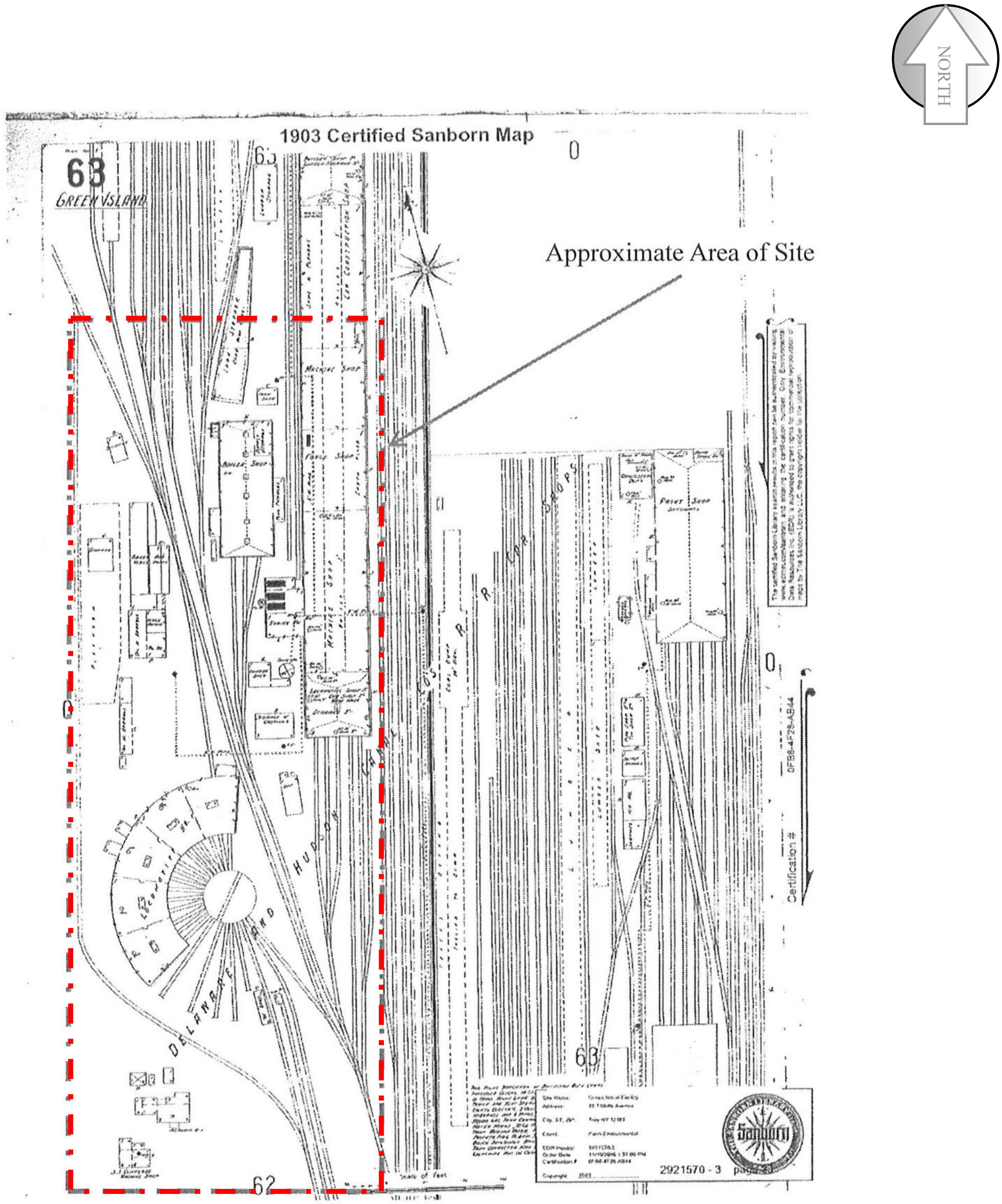
Leader

Leader Professional Services, Inc.
271 Marsh Road-Suite 200
Pittsford, New York 14534

Project 842.002
Date 7/1/20
Scale None

Drawn PVS
Checked MPR
File Name SMP

Figure
5

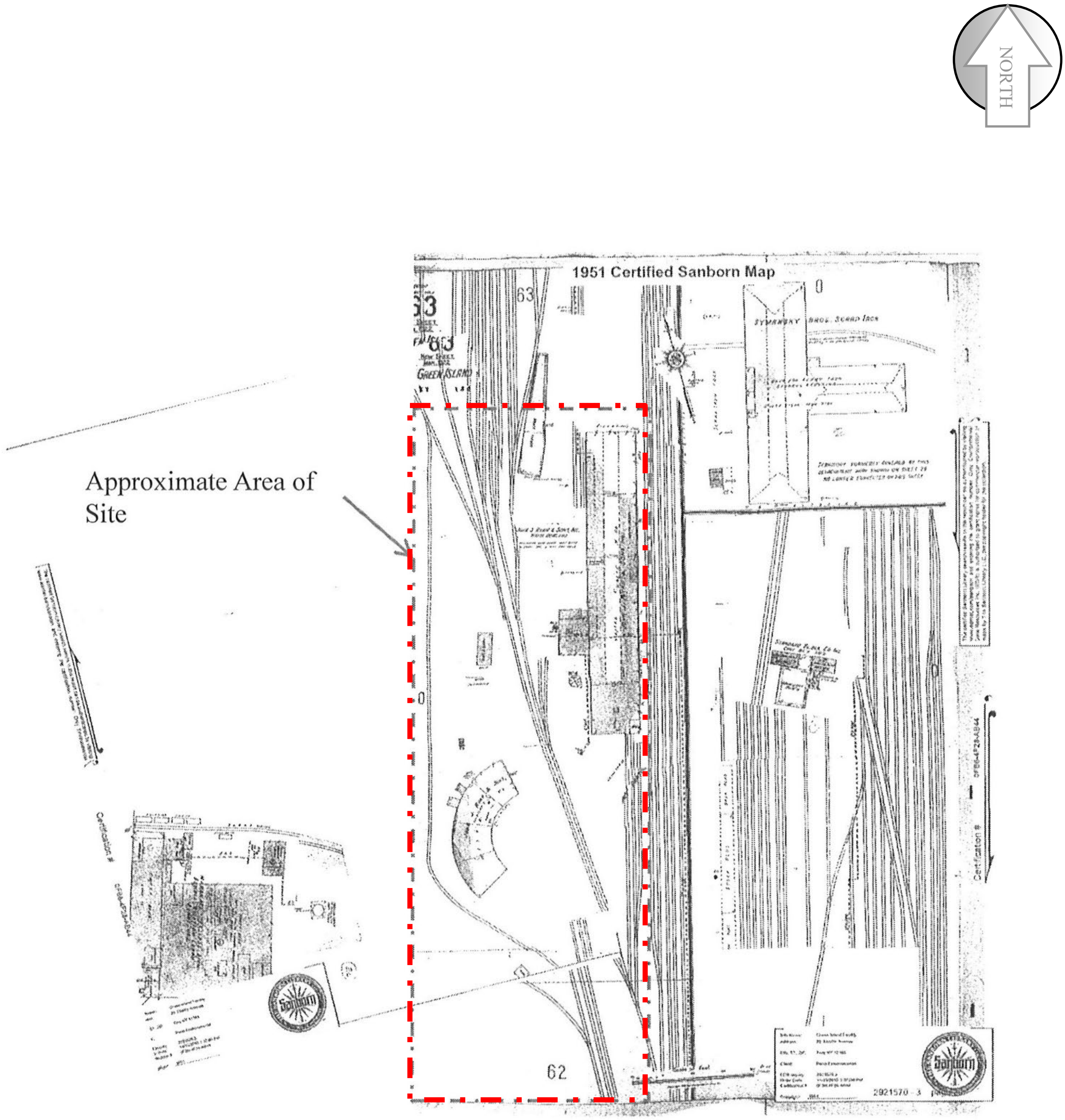


Title	1903 Sanborn Fire Insurance Map Former Freedman & Son Property Green Island, NY
Prepared For	Eastern Metal Recycling, LLC 143 Harding Avenue, 1st Floor Bellmawr, New Jersey 08031

Leader

Leader Professional Services
271 Marsh Road, Suite 2
Pittsford, NY 14534
(585) 248-2413
FAX (585) 248-2834

Project	842.002
Date	7/1/20
Scale	As Shown
Drawn	PVS
Checked	MPR
File Name	SMP
Figure	6

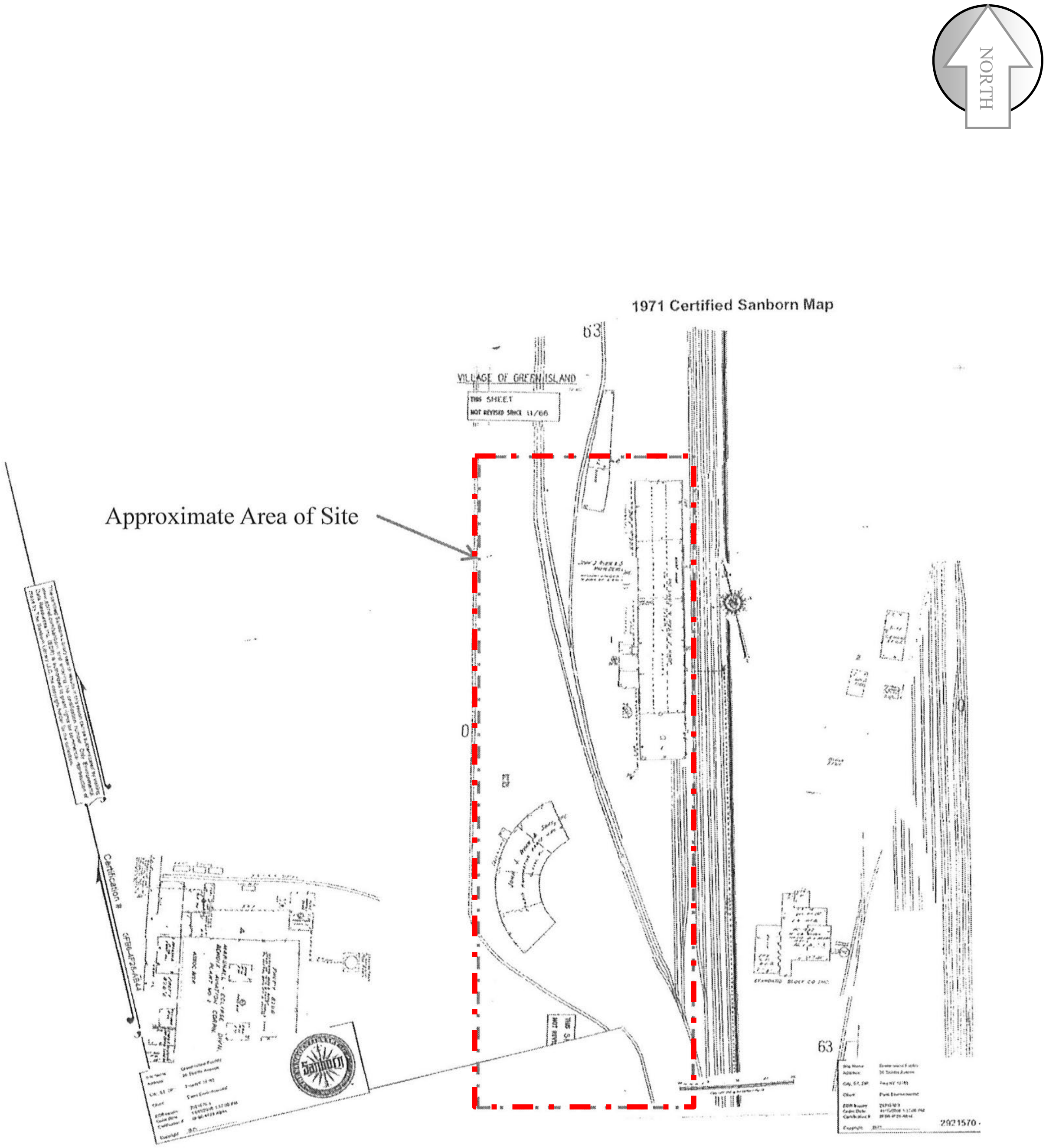


Title	1951 Sanborn Fire Insurance Map Former Freedman & Son Property Green Island, NY
Prepared For	Eastern Metal Recycling, LLC 143 Harding Avenue, 1st Floor Bellmawr, New Jersey 08031

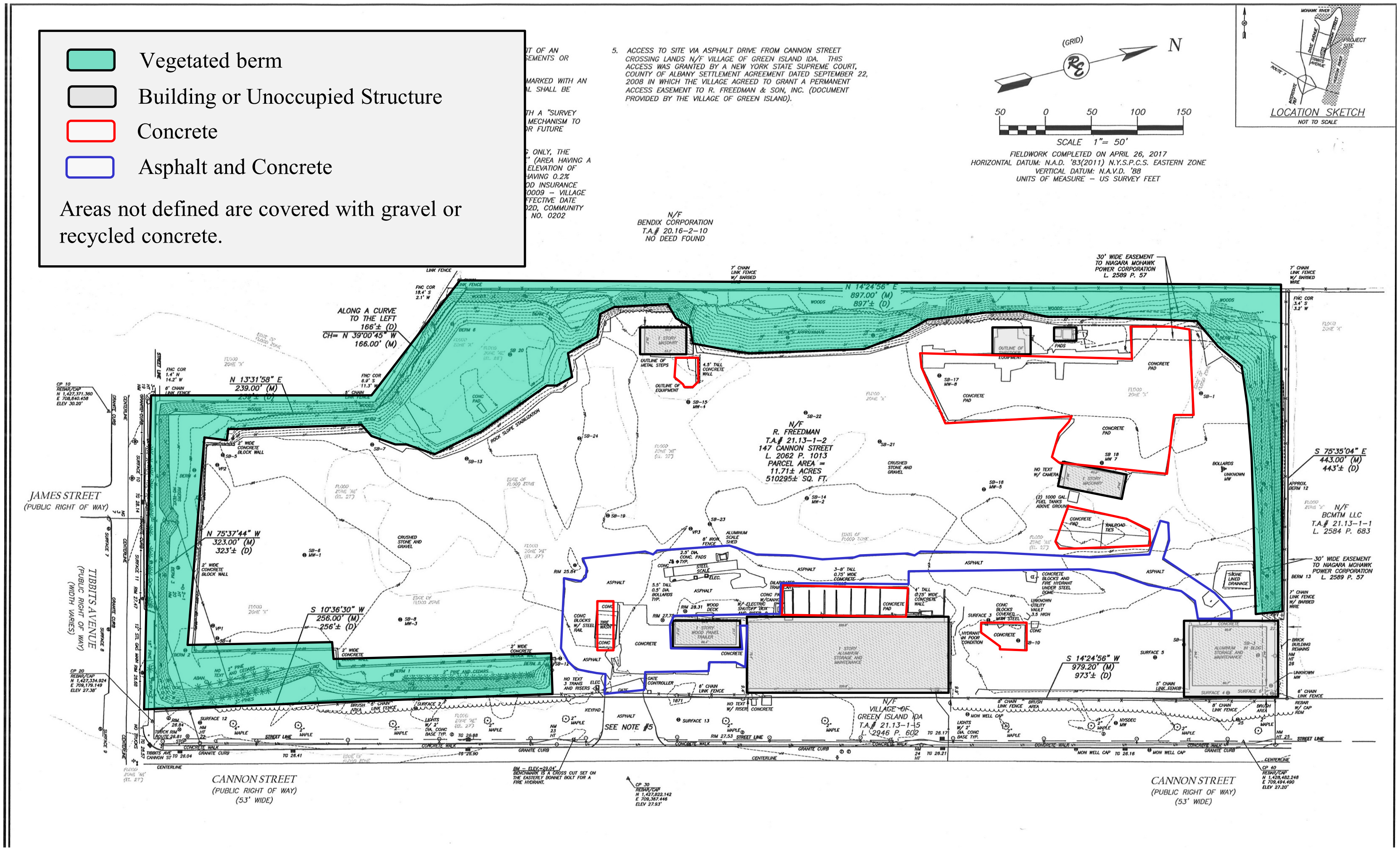
Leader

Leader Professional Services
271 Marsh Road, Suite 2
Pittsford, NY 14534
(585) 248-2413
FAX (585) 248-2834

Project	842.002
Date	7/1/20
Scale	As Shown
Drawn	PVS
Checked	MPR
File Name	Site Map
Figure	7



Title	1971 Sanborn Fire Insurance Map Former Freedman & Son Property Green Island, NY	Leader Professional Services 271 Marsh Road, Suite 2 Pittsford, NY 14534 (585) 248-2413 FAX (585) 248-2834	Project 842.002	Drawn PVS	Figure 8
Prepared For	Eastern Metal Recycling, LLC 143 Harding Avenue, 1st Floor Bellmawr, New Jersey 08031		Date 7/1/20	Checked MPR	
			Scale As Shown	File Name SMP	

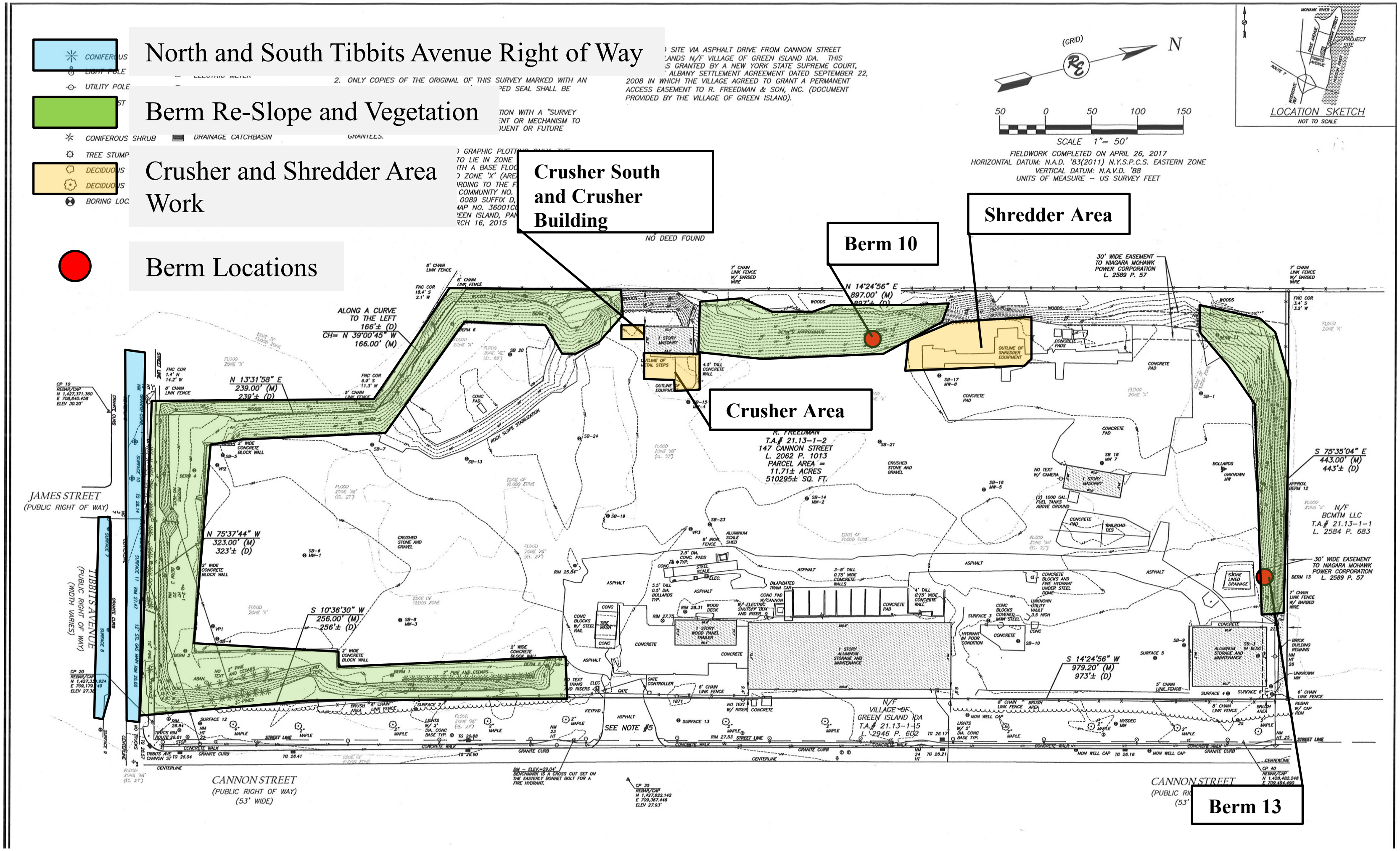


Title	Surface Materials Former Freedman & Son Property Green Island, New York
Prepared For	Eastern Metal Recycling, LLC 143 Harding Avenue, 1st Floor Bellmawr, New Jersey

Leader

Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project	842.002
Date	12/8/20
Scale	As shown
Drawn	PVS
Checked	MPR
File Name	SMP
Figure	9

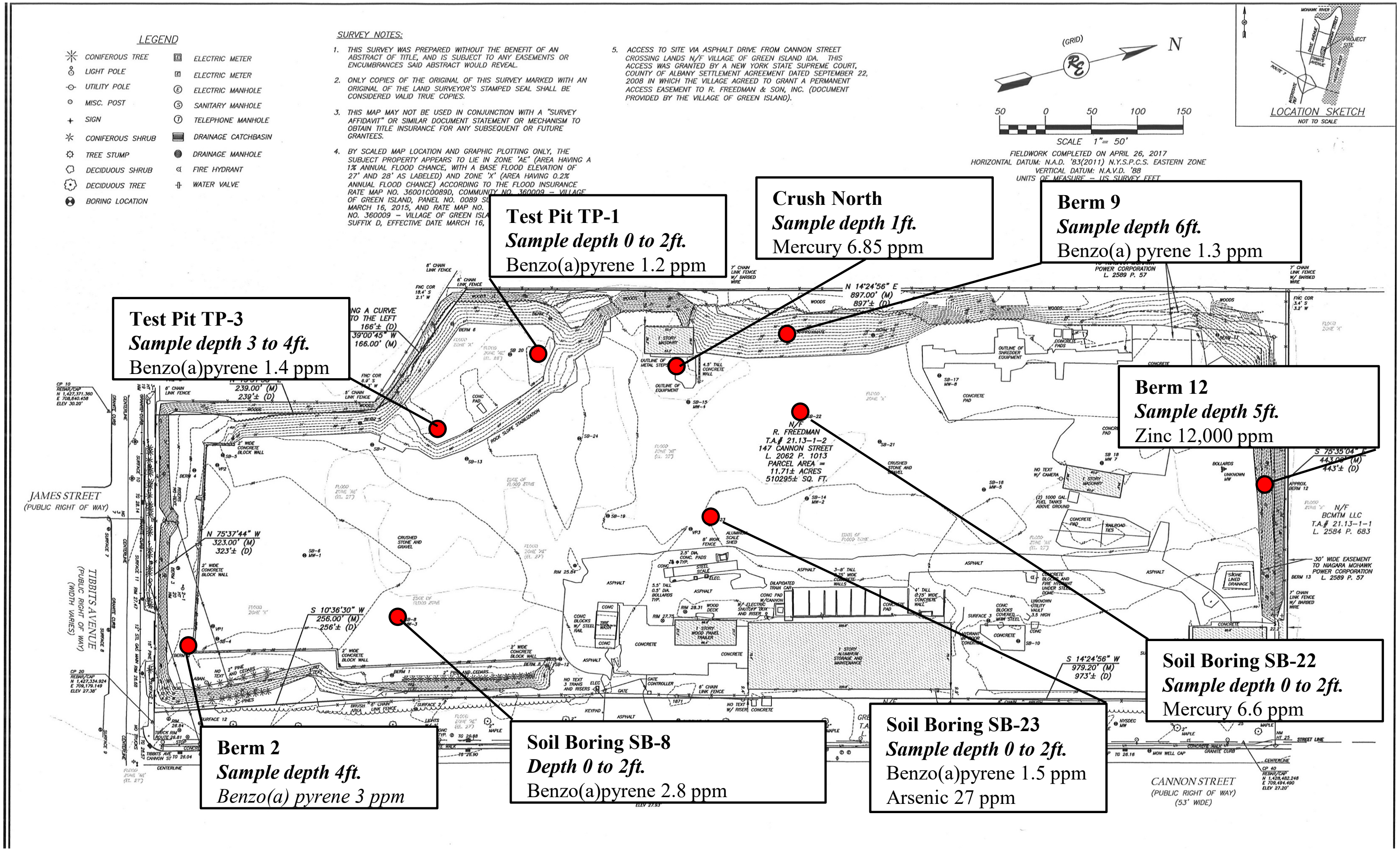


Title	IRM Areas Former Freedman & Son Property Green Island, New York
Prepared For	Eastern Metal Recycling, LLC 143 Harding Avenue, 1st Floor Bellmawr, New Jersey

Leader

Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project	842.002
Date	12/8/2020
Scale	As shown
Drawn	PVS
Checked	MPR
File Name	SMP
Figure	10



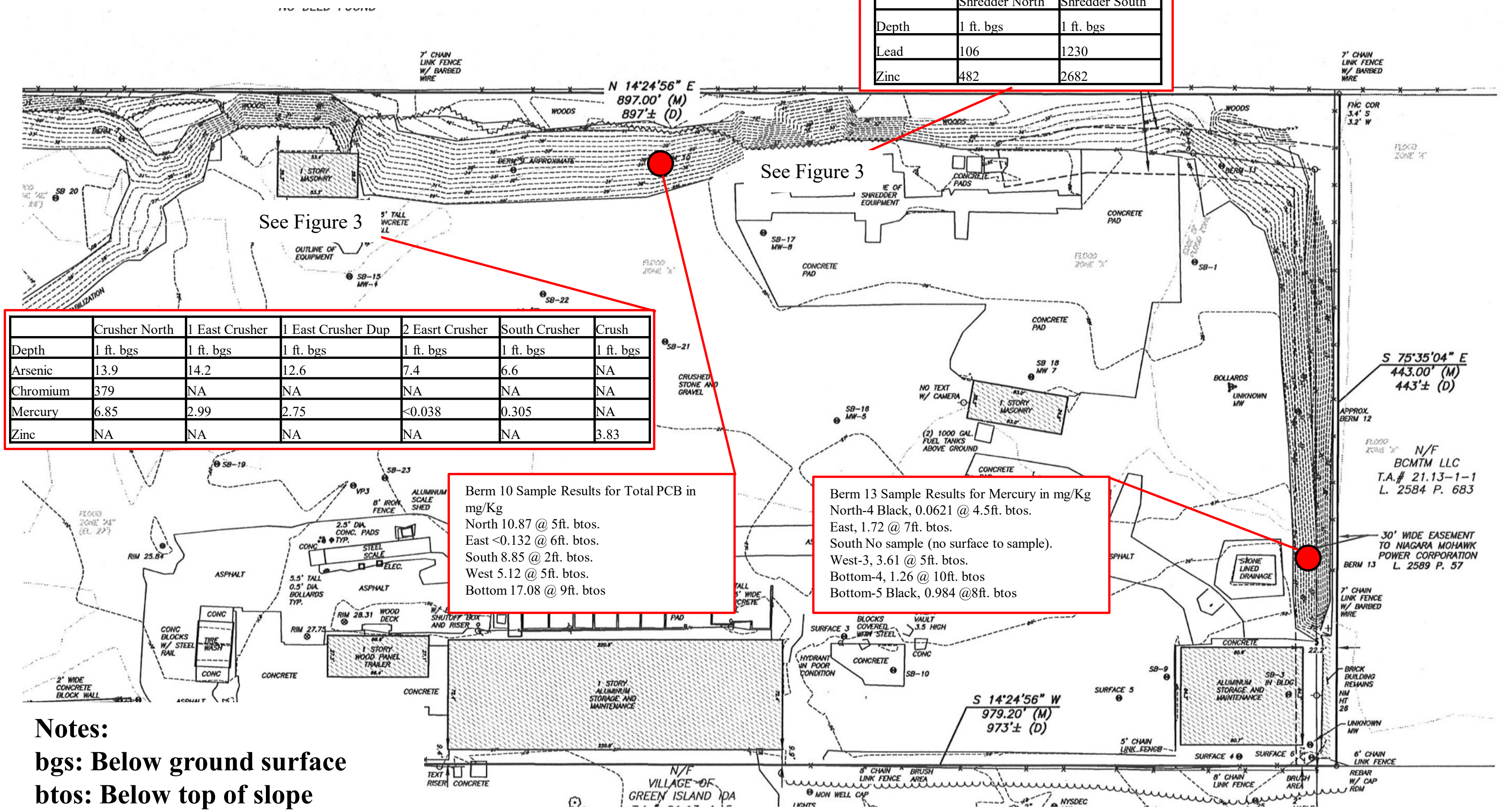
Title	On-Site Remaining Contamination in Excess of IUSCO Former Freedman & Son Property Green Island, New York
Prepared For	Eastern Metal Recycling, LLC 143 Harding Avenue, 1st Floor Bellmawr, New Jersey

Leader

Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project	842.002	Drawn	PVS
Date	12/8/2020	Checked	MPR
Scale	As shown	File Name	SMP

Figure 11



	Shredder North	Shredder South
Depth	1 ft. bgs	1 ft. bgs
Lead	106	1230
Zinc	482	2682

	Crusher North	1 East Crusher	1 East Crusher Dup	2 Easrt Crusher	South Crusher	Crush
Depth	1 ft. bgs	1 ft. bgs	1 ft. bgs	1 ft. bgs	1 ft. bgs	1 ft. bgs
Arsenic	13.9	14.2	12.6	7.4	6.6	NA
Chromium	379	NA	NA	NA	NA	NA
Mercury	6.85	2.99	2.75	<0.038	0.305	NA
Zinc	NA	NA	NA	NA	NA	3.83

Berm 10 Sample Results for Total PCB in mg/Kg
North 10.87 @ 5ft. btos.
East <0.132 @ 6ft. btos.
South 8.85 @ 2ft. btos.
West 5.12 @ 5ft. btos.
Bottom 17.08 @ 9ft. btos

Berm 13 Sample Results for Mercury in mg/Kg
North-4 Black, 0.0621 @ 4.5ft. btos.
East, 1.72 @ 7ft. btos.
South No sample (no surface to sample).
West-3, 3.61 @ 5ft. btos.
Bottom-4, 1.26 @ 10ft. btos
Bottom-5 Black, 0.984 @8ft. btos

Notes:
bgs: Below ground surface
btos: Below top of slope

Title: Post IRM Contamination Left In-Place
Former Freedman & Sons Property
Green Island, New York

Prepared For: Eastern Metal Recycling, LLC
143 Harding Avenue, 1st Floor
Bellmawr, New Jersey

Leader

Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project	842.002
Date	5/13/2021
Scale	As shown
Drawn	PVS
Checked	MPR
File Name	Post IRM
Figure	12

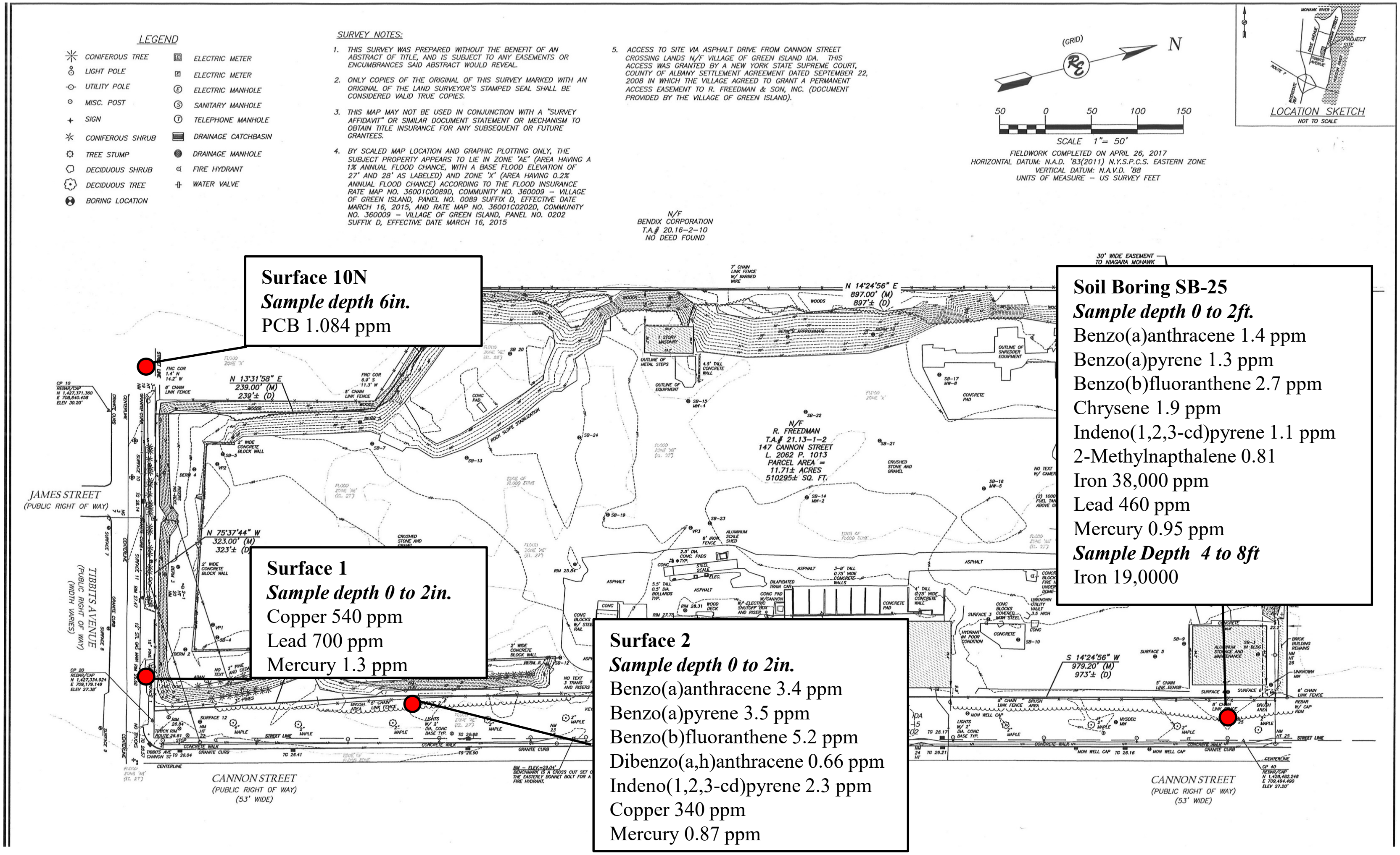
Title Detail of IRM Sample Locations Within Crusher and Shredder Areas
Former Freedman & Sons Property
Green Island, New York

Prepared For Eastern Metal Recycling, LLC
143 Harding Avenue, 1st Floor
Bellmawr, New Jersey

Leader

Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project	842.002
Date	5/13/2021
Scale	As shown
Drawn	PVS
Checked	MPR
File Name	Site drawing
Figure	13



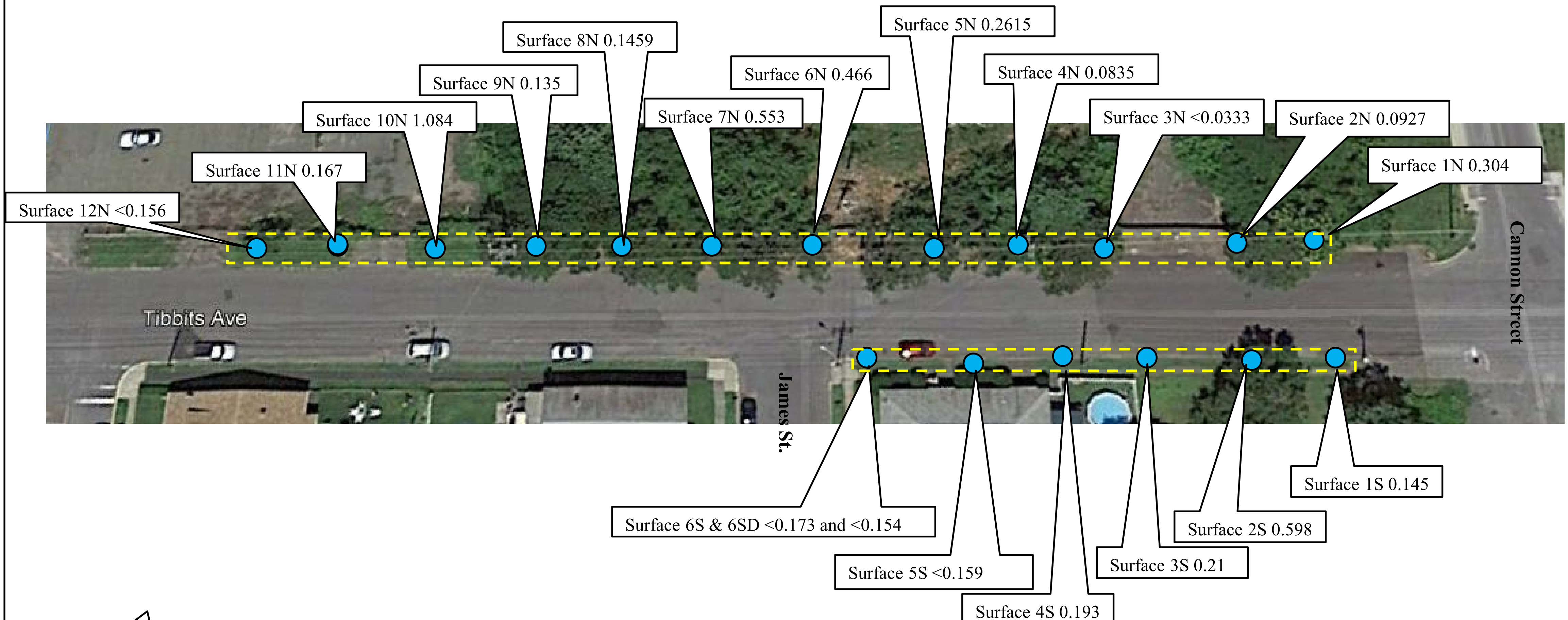
Title: Off-Site Remaining Contamination
Exceeding Restricted Residential SCO
Former Freedman & Son Property, Green Island, New York

Prepared For: Eastern Metal Recycling, LLC
143 Harding Avenue, 1st Floor
Bellmawr, New Jersey

Leader

Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project	842.002
Date	7/1/20
Scale	As shown
Drawn	PVS
Checked	MPR
File Name	SMP
Figure	14



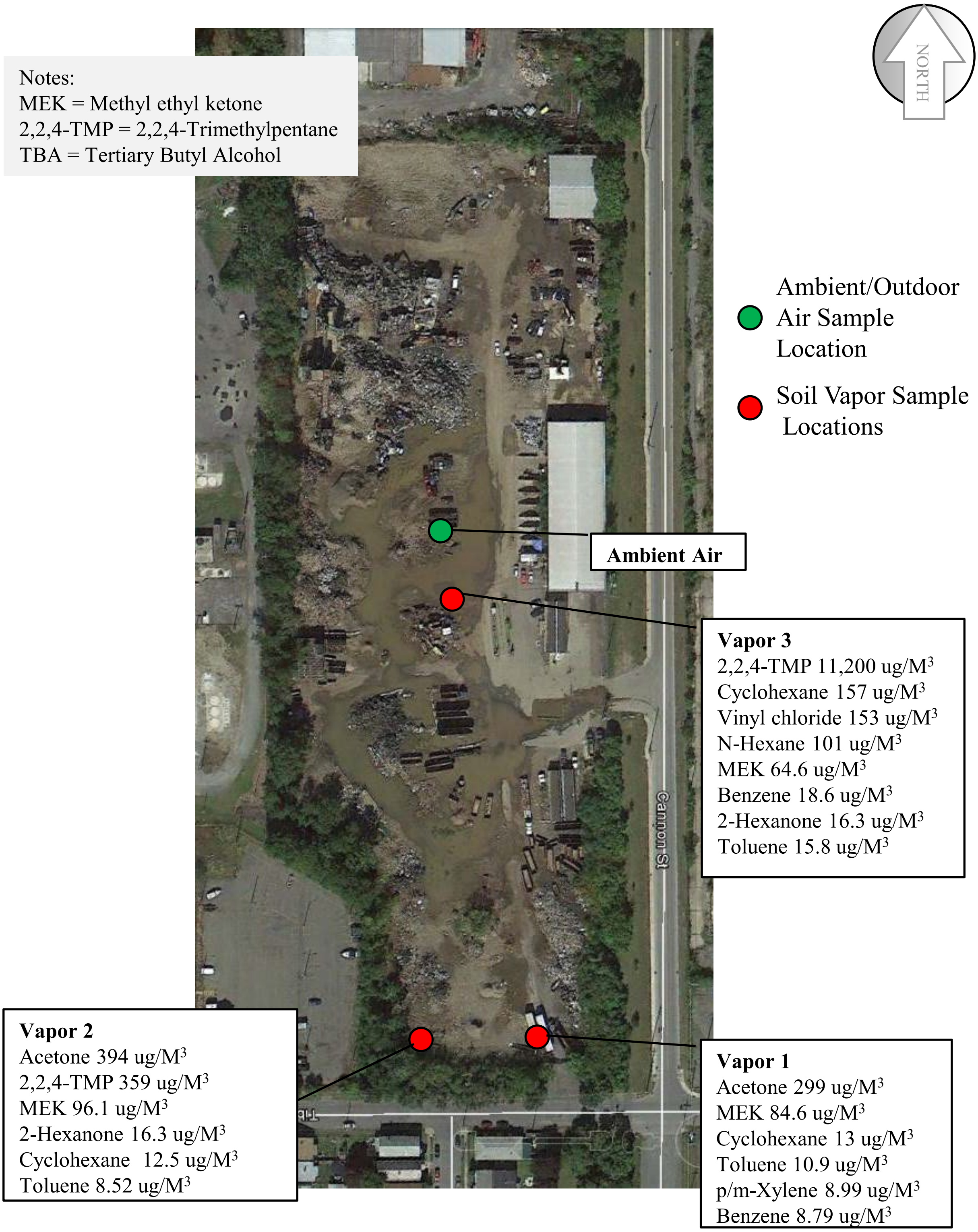
Surface 1N 0.304 Sample Id. PCB Value in milligrams per kilogram

Post IRM cleanup verification sample locations and results

Remediation Area

All samples collected from 0 to 2-inches below the post excavation ground surface

Title: Tibbits Avenue Post IRM Endpoint Sample Locations Former Freedman & Sons Property Green Island, New York	Leader Leader Professional Services, Inc 271 Marsh Road-Suite 2 Pittsford, New York 14534 (585) 248-2413 FAX (585) 248-2834	Project: 842.002	Drawn: PVS	Figure: 15
Prepared For: Eastern Metal Recycling, LLC 143 Harding Avenue, 1st Floor Bellmawr, New Jersey		Date: 5/6/2020	Checked: MPR	
		Scale: 1" = 50'	File Name: Off site drawing	



Title Summary of Soil Vapor Sample Analysis Results
Sampling Locations
Former Freedman & Son Property, Green Island, NY

Prepared For Eastern Metal Recycling, LLC
143 Harding Avenue, 1st Floor
Bellmawr, New Jersey 08031

Leader

Leader Professional Services
271 Marsh Road, Suite 2
Pittsford, NY 14534
(585) 248-2413
FAX (585) 248-2834

Project 842.002

Date 7/1/2

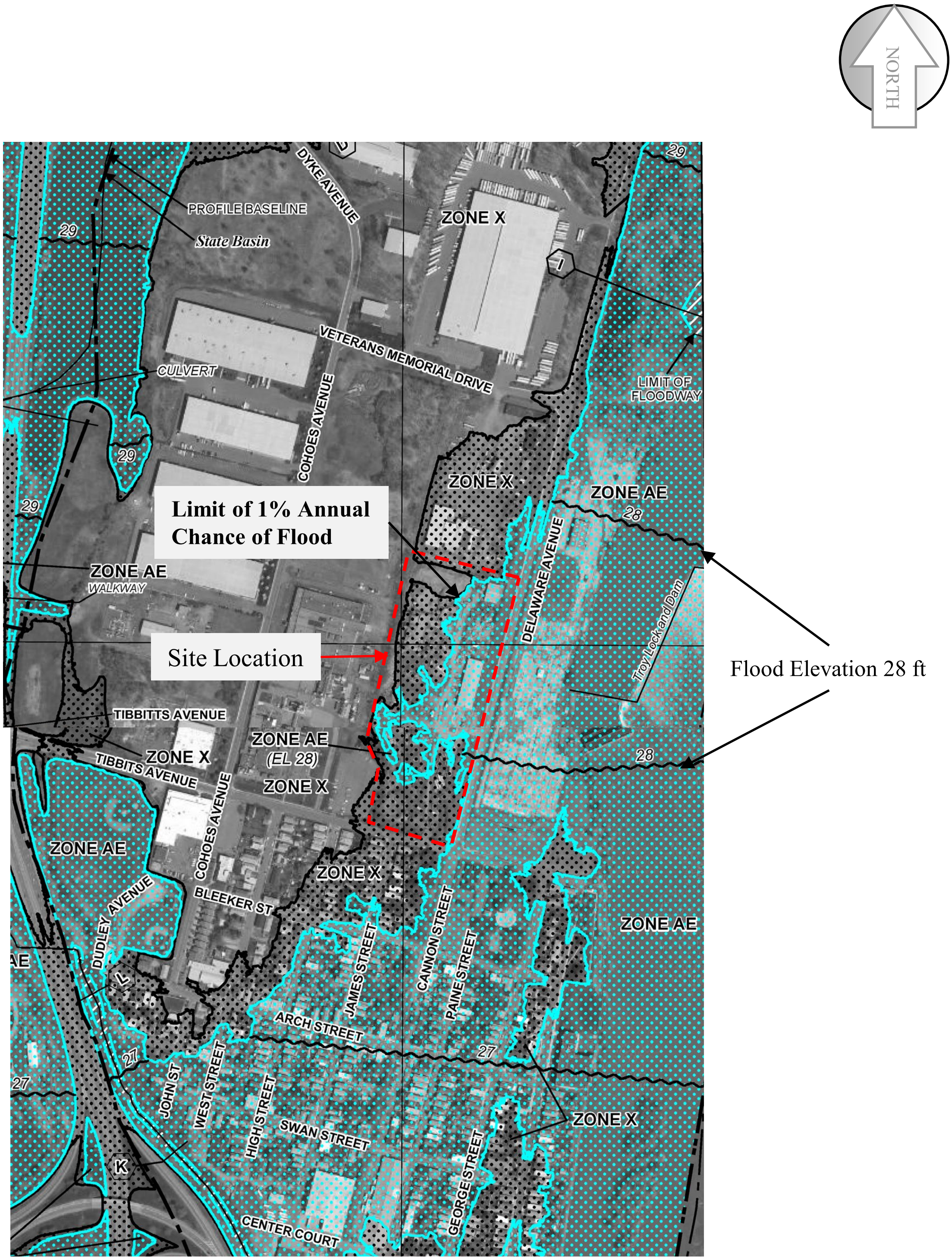
Scale Unknown

Drawn PVS

Checked MPR

File Name SMP

Figure 16



Title	FEMA Flood Hazard Map Former Freedman & Son Property Green Island, NY
Prepared For	Eastern Metal Recycling, LLC 143 Harding Avenue, 1st Floor Bellmawr, New Jersey 08031

Leader

Leader Professional Services
271 Marsh Road, Suite 2
Pittsford, NY 14534
(585) 248-2413
FAX (585) 248-2834

Project	842.002
Date	12/8/20
Scale	Unknown
Drawn	PVS
Checked	MPR
File Name	SMP
Figure	17

APPENDIX 1

ENVIRONMENTAL EASEMENT

ALBANY COUNTY – STATE OF NEW YORK
BRUCE A. HIDLEY COUNTY CLERK
16 EAGLE STREET, ALBANY, NEW YORK 12207

COUNTY CLERK'S RECORDING PAGE
THIS PAGE IS PART OF THE DOCUMENT – DO NOT DETACH

INSTRUMENT #: R2020-23737

Receipt#: 20200411851
Clerk: TR
Rec Date: 10/19/2020 09:44:58 AM
Doc Grp: D
Descrip: DEED, EASEMENT
Num Pgs: 10
Rec'd Frm: NYSDEC

Recording:

Cover Page	5.00
Recording Fee	65.00
Cultural Ed	14.25
Records Management - Coun	1.00
Records Management - Stat	4.75
TP584	5.00
Sub Total:	95.00
Transfer Tax	
Transfer Tax - State	0.00
Sub Total:	0.00
Total:	95.00

**** NOTICE: THIS IS NOT A BILL ****

***** Transfer Tax *****
Transfer Tax #: 1758
Transfer Tax

Total: 0.00

THIS PAGE CONSTITUTES THE CLERK'S ENDORSEMENT, REQUIRED BY SECTION 316-a (5) & 319 OF THE REAL PROPERTY LAW OF THE STATE OF NEW YORK.

Bruce A. Hidley
Albany County Clerk

Record and Return To:

FEDEX/VALLE, ESQ

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

THIS INDENTURE made this 6th day of October, 2020 between Owner, R. Freedman & Son, Inc. n/k/a Eastern Metal Recycling, Inc., having an office at 201 North Front Street, Camden, New Jersey 08102, (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 147 Cannon Street in the City of Green Island, County of Albany and State of New York, known and designated on the tax map of the County Clerk of Albany as tax map parcel number: Section 21.13 Block 1 Lot 2, being the same as that property conveyed to Grantor by deed dated January 30, 1973 and recorded in the Albany County Clerk's Office in Liber and Page 2062/1013. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 11.71 +/- acres, and is hereinafter more fully described in the Land Title Survey dated June 3, 2020 prepared by Charles E. Lent, L.L.S. of Ravi Engineering & Land Surveying, 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: A7-0834-14-07, 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:

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 Albany 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, Restricted Residential or Commercial purposes as defined in 6NYCRR 375-1.8(g)(i), (ii) and (iii), 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: 401033
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.

R. Freedman & Son, Inc. n/k/a Eastern Metal Recycling, Inc. :

By: ______________________

Print Name: STEPHEN DEACON

Title: COO Date: 9.18.20

Grantor's Acknowledgment

STATE OF NJ)
) ss:
COUNTY OF Camden)

On the 24th day of Sep., in the year 2020, before me, the undersigned, personally appeared Stephen Deacon, 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.

Debbie L McHugh
Notary Public - State of New ~~York~~ Jersey

DEBBIE L MCHUGH
NOTARY PUBLIC
STATE OF NEW JERSEY
MY COMMISSION EXPIRES MARCH 28, 2024

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, Director
Division of Environmental Remediation

Grantee's Acknowledgment

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

On the 6th day of October in the year 2020 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

MONICA KRESHIK, ESQ.
Notary Public, State of New York
No. 02KR6314859
Qualified in Rensselaer County
Commission Expires 11/17/2022

SCHEDULE "A" PROPERTY DESCRIPTION

ENVIRONMENTAL EASEMENT AREA

ALL THAT CERTAIN PIECE OR PARCEL OF LAND, SITUATE, LYING AND BEING IN THE VILLAGE OF GREEN ISLAND, COUNTY OF ALBANY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE NORTHEASTERLY LINE OF TIBBITS AVENUE AT ITS INTERSECTION WITH THE PROPERTY DIVISION LINE BETWEEN LANDS N/F BENDIX CORPORATION ON THE NORTHWEST AND THE HEREIN DESCRIBED LANDS N/F R. FREEDMAN & SON, INC. ON THE SOUTHEAST; THENCE ALONG SAID PROPERTY DIVISION LINE AND THE PROPERTY DIVISION LINES BETWEEN SAID LANDS N/F BENDIX CORPORATION ON THE SOUTHWEST AND NORTHWEST SAID LANDS HEREIN DESCRIBED ON THE NORTHEAST AND SOUTHEAST THE FOLLOWING THREE COURSES AND DISTANCES: 1) N13° 31' 58"E, A DISTANCE OF 239.00' (72.847m) TO A CORNER; 2) NORTHWESTERLY ON A CURVE TO THE LEFT, A DISTANCE OF 166'± TO A CORNER, SAID CURVE CONTAINING A CHORD OF N39° 00' 45"W, 166.00' (50.597m); AND 3) N14° 24' 56"E, A DISTANCE OF 897.00' (273.406m) TO ITS INTERSECTION WITH THE PROPERTY DIVISION LINE BETWEEN LANDS N/F BCBTM, LLC ON THE NORTHEAST AND SAID HEREIN DESCRIBED LANDS ON THE SOUTHWEST; THENCE S75° 35' 04"E ALONG THE LAST MENTIONED PROPERTY DIVISION LINE, A DISTANCE OF 433.00' (135.027m) TO ITS INTERSECTION WITH THE PROPERTY DIVISION LINE BETWEEN LANDS N/F VILLAGE OF GREEN ISLAND IDA ON THE SOUTHEAST AND SAID HEREIN DESCRIBED LANDS ON THE NORTHWEST; THENCE S14° 24' 56"W ALONG SAID PROPERTY DIVISION LINE, A DISTANCE OF 979.20' (298.461m) TO ITS INTERSECTION WITH THE PROPERTY DIVISION LINE BETWEEN SAID LANDS N/F VILLAGE OF GREEN ISLAND IDA ON THE EAST AND SAID HEREIN DESCRIBED LANDS ON THE WEST; THENCE S10° 36' 30"W ALONG SAID PROPERTY DIVISION LINE, A DISTANCE OF 256.00' (78.029m) TO ITS INTERSECTION WITH THE FIRST MENTIONED NORTHEASTERLY LINE OF TIBBITS AVENUE; THENCE N75° 37' 44"W ALONG SAID LINE OF TIBBITS AVENUE, A DISTANCE OF 323.00' (98.451m) TO THE POINT OF BEGINNING CONTAINING 510,295± SQUARE FEET OR 11.71± ACRES.

APPENDIX 2

LIST OF SITE CONTACTS

This Appendix should include a listing of all Site contacts. The below table should be edited as necessary to include all Site contacts necessary for implementation of the SMP.

Name	**Phone/Email Address**
Eastern Metal Recycling	856-323-4536 michael.gross@emrgroup.com
Michael Rumrill	585-248-2413 mrumrill@leaderlink.com
Kyle Forster – NYSDEC Project Manager	518-402-8644 kyle.forster@dec.ny.gov
Sarah Quandt – Bureau B Section Chief	518-402-9116 sarah.quandt@dec.ny.gov
Kelly Lewandowski - NYSDEC Site Control	518-402-9553 kelly.lewandowski@dec.ny.gov

APPENDIX 3

TEST PIT AND BORING LOGS

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # Berm-1

LOG OF TEST HOLE

Project Camden Iron & Metal LLC

Permit #:

Date Excavated 12/22/2016

Job #: 842.002

Total Depth 6'

Inspector M. Knight

Organic Vapor Inst: MiniRAE 3000

Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1				CLAYEY SAND: Dark brown, CLAYEY SAND, Some debris	SC	
2						
3	1	0-6	2.0			
4				CLAYEY SAND: Brown, CLAYEY SAND, Some debris	SC	
5						
6						

Location Diagram

North

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # Berm-2

LOG OF TEST HOLE

Project: Camden Iron & Metal LLC

Permit #:

Date Excavated: 12/22/2016

Job #: 842.002

Total Depth: 4'

Inspector: M. Knight

Organic Vapor Inst: MiniRAE 3000

Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1 2 3 4	1	0-4	1.8	SAND: Dark brown, SAND, Some clay, Siginifican amount of debris (Wood, metal, plastic, etc.) NOTE: 0-9" hasfrost in soil	SP/SC	
				Sample Berm-2 (4) collected for laboratory analysis		

Location Diagram

North

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # Berm-3

LOG OF TEST HOLE

Project Camden Iron & Metal LLC

Permit #:

Date Excavated 12/22/2016

Job #: 842.002

Total Depth 5'

Inspector M. Knight Organic Vapor Inst: MiniRAE 3000 Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1	1	0-5	1.7	0-9" SAND: Dark brown w/trace clay, Some debris	SC	
2				CLAYEY SAND: Tan, Damp, Loose, Some plasticity, Trace debris		
3						
4						
5				SAND: Dark brown, Damp, Fine grain SAND, Some clay	SP/SC	
				Sample Berm-3 (5) collected for laboratory analysis		

Location Diagram

North

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # Berm-4

LOG OF TEST HOLE

Project Camden Iron & Metal LLC

Permit #:

Date Excavated 12/22/2016

Job #: 842.002

Total Depth 7'

Inspector M. Knight

Organic Vapor Inst: MiniRAE 3000

Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1–7	1	0-7	2.1	SAND: Dark brown, Moist, SAND, Trace clay, Some gravel/cobble, significant amount of debris throughout	SP/SC	

Location Diagram

North

Sample Berm-4 (4) collected for laboratory analysis

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # Berm-5

LOG OF TEST HOLE

Project Camden Iron & Metal LLC

Permit #:

Date Excavated 12/22/2016

Job #: 842.002

Total Depth 6'

Inspector M. Knight Organic Vapor Inst: MiniRAE 3000 Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1 2	1	0-6	1.5	SAND: Dark borwn, Medium-fine grain SAND, Some gravel	SW/SP	
3 4				2'-2'1": SAND: Tan, Medium-fine grain SAND 2'1'-4': FILL Gray with white flakes, Light weight slag (FILL)	FILL	
5 6				SAND: Dark brown, Medium-fine grain SAND, Some gravel	SW/SP	
				Sample Berm-5 (6) collected for laboratory analysis		

Location Diagram

North

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # Berm-6

LOG OF TEST HOLE

Project Camden Iron & Metal LLC

Permit #:

Date Excavated 12/22/2016

Job #: 842.002

Total Depth 6'

Inspector M. Knight Organic Vapor Inst: MiniRAE 3000 Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1	1	0-6	1.8	SAND: Dark brown, Dry, Medium-fine grain SAND, Some clay and gravel, Debris present	SW/SP	
2						
3						
4						
5				SAND: Tan, Nedium-fine grain SAND, with clay	SC	
6				SAND: Dark brown, Moist, Medium-fine grain SAND, some clay & gravel	SW/SP	
				Sample Berm-6 (6) collected for laboratory analysis		

Location Diagram

North

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # Berm-7

LOG OF TEST HOLE

Project Camden Iron & Metal LLC

Permit #:

Date Excavated 12/22/2016

Job #: 842.002

Total Depth 6'

Inspector M. Knight Organic Vapor Inst: MiniRAE 3000 Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1						
2						
3	1	0-6	0.3	SAND: Dark brown, Moist, Medium-fine grain SAND, Some clay and gravel, Significant amount of debris	SP/SC	
4						
5						
6						
				Sample Berm-7 (6) collected for laboratory analysis		

Location Diagram

North

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # Berm-8

LOG OF TEST HOLE

Project Camden Iron & Metal LLC

Permit #:

Date Excavated 12/22/2016

Job #: 842.002

Total Depth 6'

Inspector M. Knight

Organic Vapor Inst: MiniRAE 3000

Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1						
2						
3	1	0-6	2.1	SAND: Dark brown, Dry, Loose, Medium-fine grain SAND, Trace silt & gravel	SP/SM	
4						
5						
6						
				Sample Berm-8 (6) collected for laboratory analysis		

Location Diagram

North

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # Berm-9

LOG OF TEST HOLE

Project: Camden Iron & Metal LLC | Permit #:

Date Excavated: 12/22/2016 | Job #: 842.002

Total Depth: 6'

Inspector: M. Knight | Organic Vapor Inst: MiniRAE 3000 | Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1						
2						
3	1	0-6	2.0	CLAYEY SAND: Dark brown, Damp, Fine grain CLAYEY SAND, Large amount of debris	SC	
4						
5						
6						
				Sample Berm-9 (6) collected for laboratory analysis		

Location Diagram

North

o:\forms\Berm-9.xls 3/5/2020

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # Berm-10

LOG OF TEST HOLE

Project Camden Iron & Metal LLC

Permit #:

Date Excavated 12/23/2016

Job #: 842.002

Total Depth 6'

Inspector M. Knight   Organic Vapor Inst: MiniRAE 3000   Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1	1	0-6	2.0	SAND: Dark brown, SAND, Gravel, Some silt, Significant amount of debris	SP/SM	
2						
3						
4				SAND: Gray, Medium-fine grain SAND, Trace clay, Significant amount of debris	SP/SC	
5				SAND: Dark brown, SAND with gravel, Trace silt, Less debris	SP/SM	
6						
				Sample Berm-10 (5) collected for laboratory analysis		

Location Diagram

North

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # Berm-11

LOG OF TEST HOLE

Project	Camden Iron & Metal LLC	Permit #:	
Date Excavated	12/23/2016	Job #:	842.002
Total Depth	5'		
Inspector	M. Knight	Organic Vapor Inst: MiniRAE 3000	Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1						
2						
3	1	0-6	0.7	SAND: Dark brown, Moist Medium-fine grain SAND, Some clay, Debris present throughout	SP/SM	
4						
5						
				Sample Berm-11 (4) collected for laboratory analysis		

Location Diagram

North

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # Berm-12

LOG OF TEST HOLE

Project Camden Iron & Metal LLC

Permit #:

Date Excavated 12/22/2016

Job #: 842.002

Total Depth 6'

Inspector M. Knight Organic Vapor Inst: MiniRAE 3000

Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1						
2						
3	1	0-6	2.1	SAND: Dark brown, Moist, Medium-fine grain SAND, Some clay and debris	SP/SC	
4						
5						
6						
				Sample Berm-12 (5) collected for laboratory analysis		

Location Diagram

North

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # Berm-13

LOG OF TEST HOLE

Project Camden Iron & Metal LLC

Permit #:

Date Excavated 12/23/2016

Job #: 842.002

Total Depth 5'

Inspector M. Knight Organic Vapor Inst: MiniRAE 3000 Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1						
2						
3	1	0-6	1.5	SAND: Brown, Dry, Medium-fine grain SAND, Some clay, Significant debris	SP/SM	
4						
5						
				Sample Berm-13 (5) collected for laboratory analysis		

Location Diagram

North

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-1
Page 1 of 1

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Permit #:
Date Drilled: 12/19/16
Drilling Co.: Nature's Way
Job #: 842.002
Total Depth: 3'
Method Used: Direct Push
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: Unknown

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
						0-8" Gravel (FILL)	FILL	
1 2	1	N/A	0-2	1	6.8	8'-2' SAND: Black, Damp, Med-Fine grain SAND, Debris (Wood, metal, glass)		
3	2	N/A	2-3	1	3.8	SAND: Moist, Loose, Black, SAND, Trace clay, Significant debris (Birck, Wood, etc.)		
						Refusal at 3'. Submitted sample SB-1 (0-2) submittted to laboratory for analysis.		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-2
Page 1 of 1

LOG OF BORING

Project: Camden Iron & Metal LLC | Location: 25 Tibbits Ave, Green Island, NY | Permit #:
Date Drilled: 12/19/16 | Drilling Co.: Nature's Way | Job #: 842.002
Total Depth: 16' | Method Used: Direct Push
Inspector: Matt Knight | Organic Vapor Inst: MiniRAE 3000 | Water elv: 12'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	N/A	0-2	2	190	0-1' Gravel Fill FILL: Dry, Black, SAND, with gravel, silt, & Debris (Brick, wood, cinders).	FILL	
4	2	N/A	2-4	2	56.3	FILL: Dry, Black, SAND, with gravel, silt, & Debris (Brick, wood, cinders).		
6	3	N/A	4-6	2	1.3	SAND: Dry, Loose, Black, Medium-fine grain SAND, with silt, Some gravel	SP	
8	4	N/A	6-8	2	0.5	SAND: Dry, Loose, Gray Medium-fine grain SAND, with silt, Some gravel		
10	5	N/A	8-10	2	3.1	GRAVELLY SAND: Black, wet, Dense, Coarse-Medium grain GRAVELLY SAND	SP	
12	6	N/A	10-12	0.75	0.4	S.A.A.		
14	7	N/A	12-14	0	NA	No Recovery		
16	8	N/A	14-16	0	NA	No Recovery		
						Boring terminated at 16'. Samples SB-2 (0-2), SB-2 (2-4), and SB-2 (8-10 were sampeld for lab analysis.		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-3
Page 1 of 1

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Permit #:
Date Drilled: 12/20/16
Drilling Co.: Nature's Way
Job #: 842.002
Total Depth: 9'
Method Used: Direct Push
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: 12'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
						0-10' Gravel Fill	Fill	
2	1	NA	0-2	1	0.3	10"-2' SAND: Dry, Loose, Medium-Fine grain SAND with Gravel	SP	
4	2	NA	2-4	1	0.5	SAND: Brown, Loose, Medium-fine grain SAND, with Gravel		
6	3	NA	4-6	0	NA	No Recovery	No Recovery	
8	4	NA	6-8	0	NA	No Recovery		
	5	NA	8-9	1	0.0	GRAVEL & SAND: Saturated, Gray, Fine grain SAND and Gravel Mix, Trace silt	SP	
10						Refusal encountered at 9'		
						Samples SB-3 (0-2) and SB-3 ((8-9) samples were collected for laboratory analysis		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-4
Page 1 of 1

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Permit #:
Date Drilled: 12/20/16
Drilling Co.: Nature's Way
Job #: 842.002
Total Depth: 16'
Method Used: Direct Push
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: 14'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	NA	0-2	1	0.1	SAND: Black fine grain SAND & GRAVEL	SW	
4	2	NA	2-4	2	0.1	CLAYEY SAND: Brown, Damp, Fine grain CLAYEY SAND	SC	
6	3	NA	4-6	0	NA	No Recovery	No Recovery	
8	4	NA	6-8	0	NA			
10	5	NA	8-10	1	NA	SAND: Sand and some Gravel	SP/SW	
12	6	NA	10-12	1	NA			
14	7	NA	12-14	2	0.1	SAND: Brown, Saturated, Fine grain SAND, Trace Gravel & Silt	SP/SM	
16	8	NA	14-16	1.5	0.3			
						Boring terminated at 16' Samples SB-4 (0-2), SB-4 (2-4), and SB-4 (12-16) collelcted for laboratory analysis.		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-5
Page 1 of 1

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Permit #:
Date Drilled: 12/20/16
Drilling Co.: Nature's Way
Job #: 842.002
Total Depth: 3.5'
Method Used: Direct Push
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: Unknown

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
	1	NA	0-2	1	5.0	0-10" GRAVEL	GW	
1		NA				10"-2' SAND: Brown, Loose, Damp, Fine grain SAND	SP/SM	
2	2	NA	2-3.5	1.5	NA	SAND: Brown, Loose, Damp, Fine grain SAND		
3						Boring terminated @ 3.5' Sample SB-5 (0-2) collected for laboratory analysis.		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-6
Page 1 of 1

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Permit #:
Date Drilled: 12/20/16
Drilling Co.: Nature's Way
Job #: 842.002
Total Depth: 20'
Method Used: Direct Push
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: 14'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	NA	0-2	1.5	0.8	FILL: Gray Gravel and Sand	FILL	
4	2	NA	2-4	2	1.4	SAND: Black, Medium grain SAND, Some glass and debris, Trace silt	SM	
6	3	NA	4-6	2	1.8	GRAVEL & SAND: Gray GRAVEL and SAND Mixture	SP/SW	
8	4	NA	6-8	1.6	3.0	SAND: Black, Medium grain SAND, Some gravel		
10	5	NA	8-10	1.2	1.8			
12	6	NA	10-12	1.2	2.1	SAND: Gray, Moist, Medium to fine grain SAND, with Gravel		
14	7	NA	12-14	1.6	3.1		SP/SW	
16	8	NA	14-16	1.6	2.0	SAND: Gray, Saturated, Medium to Fine grain SAND, with Gravel		
18	9	NA	16-18	1.6	1.7			
20	10	NA	18-20	1.6	2.1	SAND: Gray, Saturated SAND with Gravel		
						Boring terminated at 20' SB-6 (4-6) & SB-6 (18-20) submitted to laboratory for anlysis		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-7
Page 1 of 1
Permit #:
Job #: 842.002

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Date Drilled: 12/20/16
Drilling Co.: Nature's Way
Total Depth: 2'
Method Used: Direct Push
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: Unknown

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
						0-0.5' FILL: Gravel & Sand	FILL	
2		NA	0-2	1.5	0.8	SAND: Brown and black, Fine grain SAND, Trace gravel	SP/SW	
4						Boring terminated at 2'		
6								
8								
10								
12								
14								
16								

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-8
Page 1 of 1

LOG OF BORING

Project	Camden Iron & Metal LLC	Location	25 Tibbits Ave, Green Island, NY	Permit #:	
Date Drilled	12/20/16	Drilling Co.:	Nature's Way	Job #:	842.002
Total Depth	20'	Method Used:	Direct Push		
Inspector	Matt Knight	Organic Vapor Inst:	MiniRAE 3000	Water elv:	12'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
						0-0.5' FILL: Gray Sand & Gravel Fill	FILL	
2	1	NA	0-2	2	3.4	0.5-2' SAND: Dark gray, Damp, Fine grain SAND, some gravel & Plastic debris	Poss. Fill	
4	2	NA	2-4	2	3.1	SAND: Black and brown, Dry, Loose, Fine grain SAND, Some gravel		
6	3	NA	4-6	1	2.4	SAND: Grayish brown, Medium grain SAND, with Gravel	SP	
8	4	NA	6-8	1	1.8	SAND: Brown, Damp, Loose, Medium grain SAND, Trace Gravel & Silt	SP/SM	
10	5	NA	8-10	0	NA	No Recovery	No Recovery	
12	6	NA	10-12	0	NA			
14	7	NA	12-14	0	NA	No Recovery, Sleeve is saturated		
16	8	NA	14-16	0	NA			
18 / 20	9	NA	16-18	1	0.3	SAND: Grayish-black, Loose, Saturated, Coarse to fine grain SAND	SP	
						Boring terminated at 20' Soil smples SB-8 (0-2), SB-8 (6-8), and SB-8 (16-20) were collected for laboratory anlalysis.		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-9

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Permit #:
Date Drilled: 12/21/16
Drilling Co.: Nature's Way
Job #: 842.002
Total Depth: 8'
Method Used: Direct Push
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: 6'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	NA	0-2	1	0.2	0-1': FILL: Gravel	FILL	
4	2	NA	2-4	1	0.8	SAND: Gray to brown, Damp, Loose, Fine grain SAND, Trace clay	SC	
6	3	NA	4-6	1.5	0.6	SAND: Gray, Saturated, Medium to fine grain SAND, Some Gravel & Silt	SP	
8	4	NA	6-8	2	0.7	SAND: Gray, Saturated, Loose, Medium to fine grain SAND, with Gravel		
						Boring terminated at 8'. Soil Sample SB-9 (0-2) and SB-9 (6-8) submitted for laboratory analysis		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-10
Page 1 of 1
Permit #:
Job #: 842.002

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Date Drilled: 12/21/16
Drilling Co.: Nature's Way
Total Depth: 8'
Method Used: Direct Push
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: 7

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	NA	0-2	0	NA	0-0.5': Crusher run No Recovery	Fill	
4	2	NA	2-4	0.5	0.3	GRAVEL & SAND: Gravel and Brown sand mixture		
6	3	NA	4-6	1.5	2.1	Gravel Fill	Fill	
8	4	NA	6-8	2	1.1	SAND: Gray, Loose, Saturated, Medium grain SAND with Gravel	SP/GP	
10						Refusal encountered at 8' Soil sample SB-10 (6-8) collected for laboratory analysis		
12								
14								
16								

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LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-11
Page 1 of 1

LOG OF BORING

Project: Camden Iron & Metal LLC — Location: 25 Tibbits Ave, Green Island, NY — Permit #:
Date Drilled: 12/21/16 — Drilling Co.: Nature's Way — Job #: 842.002
Total Depth: 7.5' — Method Used: Direct Push
Inspector: Matt Knight — Organic Vapor Inst: MiniRAE 3000 — Water elv: Unknown

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	NA	0-2	3	2.7	0-10" Concrete 10'-4' SAND: Brown, Dry, Loose, Medium to fine grain SAND, Some Gravel	SP/SW	
4								
6	2	NA	4-7.5	2.5	2.1	GRAVELLY SAND: Brown, Saturated, Loose. GRAVELLY SAND	SP/SW	
8						Encounter refusal at 7.5'. Submitted SB-11 (0-4) and SB-11 (4-7.5) for laboratory analysis		
10								
12								
14								
16								

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

LOG OF BORING

BORING #: SB-12
Page 1 of 1

Project: Camden Iron & Metal LLC | Location: 25 Tibbits Ave, Green Island, NY | Permit #:
Date Drilled: 12/21/16 | Drilling Co.: Nature's Way | Job #: 842.002
Total Depth: 16' | Method Used: Direct Push
Inspector: Matt Knight | Organic Vapor Inst: MiniRAE 3000 | Water elv: 12'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	NA	0-2	1.5	0.4	FILL: Wet, Gravel and Medium grain SAND	FILL	
4	2	NA	2-4	2	1.1	GRAVELY SAND: Brown, Wet, Medium grain, GRAVELY SAND	SW/SP	
6	3	NA	4-6	1.5	2.8	SAND: Brown, Damp, Medium grain SAND, Some gravel		
8	4	NA	6-8	2	2.5			
10, 12	5	NA	8-12	2	1.7	GRAVELLY SAND: Brown, Wet, Medium to fine gran GRAVELLY SAND		
14	6	NA	12-14	2	2.1	GRAVELLY SAND: Gray, Saturated GRAVELLY SAND		
16	7	NA	14-16	2	1.5	GRAVELLY SAND: Gray, Saturated GRAVELLY SAND		
						Boring terminated at 16' Samples SB-12 (4-6) and SB-12 (14-16) were collected for laboratory analysis		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-13
Page 1 of 1

LOG OF BORING

Project: Camden Iron & Metal LLC | Location: 25 Tibbits Ave, Green Island, NY | Permit #:
Date Drilled: 12/21/16 | Drilling Co.: Nature's Way | Job #: 842.002
Total Depth: 12' | Method Used: Direct Push
Inspector: Matt Knight | Organic Vapor Inst: MiniRAE 3000 | Water elv: 8.5

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	NA	0-2	2	0.2	Gravel fill	FILL	
4	2	NA	2-4	2	0.3	SAND: Gray, Damp, SAND with Gravel	SP/SW	
6	3	NA	4-6	2	1.2			
8	4	NA	6-8	2	2.1	SAND: Brown, Wet, SAND, Trace clay	SC	
10 / 12	5	NA	8-12	2	2.3	GRAVEL and SAND: Gray, Loose, Saturated GRAVEL and SAND mixture	SP/SW	
						Boring terminated at 12' Soil samples SB-13 (2-4) and SB-13 (8-12) wre collected for laboratory analysis		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-14
Page 1 of 1

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Permit #:
Date Drilled: 1/10/17
Drilling Co.: Nature's Way
Job #: 842.002
Total Depth: 16'
Method Used: Hollow Stem Auger
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: 11'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	NA	0-2	1	0.2	SAND & GRAVEL: Gray, SAND & GRAVEL Mixture, with Fine grain sand	Fill	
4	2	NA	2-4	1	0.3	SAND: Dry, Black, Loose, Medium-Fine grain SAND, Some gravel	Fill	
6	3	NA	4-6	0.833	1.4	SAND: Black, Dry, Loose, Medium-Fine grain SAND, Some silt and gravel	SP/SM	
8	4	NA	6-8	0.833	0.4	GRAVELLY SAND: Black,Wet, Loose, Black, GRAVELLY SAND, Some silt		
10	5	NA	8-10	0.5	1.0	SAND: Gray, Sauturated, Fine grain SAND with gravel	SW/SP	
12	6	NA	10-12	No Recovery	NA	No Recovery	No Recovery	
14	7	NA	12-14	0.416	0.8	SAND: Gray, Dense, Saturated, Fine grain SAND, Some clay, Low plasticity	SC	
16	8	NA	14-15	0.33	NA			
						Boring terminated at 16'. Soil smples SB-14 (0-2), SB-14 (4-6), and SB-14 (12-16) were collected for laboratory anlalysis.		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-15
Page 1 of 1

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Permit #:
Date Drilled: 1/11/17
Drilling Co.: Nature's Way
Job #: 842.002
Total Depth: 12'
Method Used: Hollow Stem Auger
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: 8'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	NA	0-2	0.166	1.8	SAND AND GRAVEL: Gray, Wet, Medium grain SAND AND GRAVEL	SW/SP	
4	2	NA	2-4	1	10.3	SAND: Dark gray, Dry, Loose, SAND, Trace silt, Some gravel	SP/SM	
6	3	NA	4-6	0.25	12.4	CLAYEY SAND: Dark gray, Damp, Dense, Fine grain CLAYEY SAND, Trace gravel, Odor present	SC	
8	4	NA	6-8	1.33	20.2	SAND: Dark Gray, Wet, Loose, Medium-fne grain SAND, With silt and gravel	SP/SM	
10	5	NA	8-10	1	18.4	SAND: Dark Gray, Saturated, Loose, Medium-fne grain SAND, With silt and clay	SM/SC	
12	6	NA	10-12	0.33	17.3	SAND: Gray, Dense, Saturated Fine-meidum grain SAND, with silt and clay	SM/SC	
						Auger refusal at 12'. Soil smples SB-15 (2-4) and SB-15 (18-10) were collected for laboratory anlalysis.		

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LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-16

LOG OF BORING

Page 1 of 1

Project: Camden Iron & Metal LLC — Location: 25 Tibbits Ave, Green Island, NY — Permit #:

Date Drilled: 1/11/17 — Drilling Co.: Nature's Way — Job #: 842.002

Total Depth: 9' — Method Used: Hollow Stem Auger

Inspector: Matt Knight — Organic Vapor Inst: MiniRAE 3000 — Water elv: 6'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	NA	0-2	0.5	0.7	SAND: Brown, Wet, Loose, Fine-medium grain SAND with gravel	Fill	
4	2	NA	2-4	1.5	1.8	2'-2'10" SAND: Black, Medium grain SAND, With gravel 2'10"-4' SAND: Gray, Loose, Dry, Medium-fine grain SAND, with silt	Fill SM	
6	3	NA	4-6	0.33	3.1	SILTY SAND: Gray, Dry, Loose, Fine grain SILTY SAND, Some gravel	SM	
8	4	NA	6-9	1.0	2.1	SAND: Gray, Saturated, Loose, Coarse-fine grain SAND, some silt and gravel	SM/SC	
10						Auger refusal at 9'. Soil smples SB-15 (2-4) and SB-16 (6-9) were collected for laboratory anlalysis.		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-17
Page 1 of 1
Permit #:
Job #: 842.002

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Date Drilled: 1/16/17
Drilling Co.: Nature's Way
Total Depth: 8.3'
Method Used: Hollow Strem Auger
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: 6'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	NA	0-2	0.25	0.8	0-9" Concrete 9"-2' Crusherrun (GAB)	FILL	
4	2	NA	2-4	1.5	2.8	SAND: Dark gray, Dry, Loose, SAND, Trace silt, Some gravel	SP/SM	
6	3	NA	4-6	0.167	1.0	SAND: Dark gray, Dry, Loose, fine grain SAND, Some gravel/pebbles	SP	
8	4	NA	6-8	0.67	1.1	SAND: Dark gray, Saturated, Dense, SAND, Some clay and gravel	SC/SM	
	5	NA	8-8.3	0.167	0.9	GRAVEL: Weathered rock	Bedrock	
10						Auger refusal at 8.3'		
12						Soil smples SB-17 (2-4) and SB-17 (6-8) were collected for laboratory anlalysis.		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-18
Page 1 of 1
Permit #:
Job #: 842.002

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Date Drilled: 1/17/17
Drilling Co.: Nature's Way
Total Depth: 16'
Method Used: Hollow Stem Auger
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: 10'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	NA	0-2	0.33	0.7	0-9' Concrete 9"-2' Crusherrun (GAB)	FILL	
4	2	NA	2-4	0.25	1.5	SAND: Black, Dry, Dense, medium-fine grain SAND, Some Silt and gravel	SP/SM	
6	3	NA	4-6	1.5	15.3	SAND: Dark gray, Damp, Loose, Medium grain SAND, With gravel and Trace clay, slight odor	SP	
8	4	NA	6-8	0.083	12.7	SAND: Black, Saturated, Loose, Fine grain SAND, Some silt	SM	
10	5	NA	8-10	1.5	16.7	SAND: Black, Wet, Loose, Medium-fine grain SAND, Some silt, slight odor		
12	6	NA	10-12	1.5	15.7	SAND: Black, Saturated, Loose, Coarse-medium grain SAND, Some gravel	SP	
14	7	NA	12-14	1.25	13.7	12'-13'4" S.A.A. 13'4"-14' CLAY: Tan, Moist, Stiff, CLAY Medium plasticity	MH	
16	8	NA	14-16	0.833	12.3	SAND: Dark gray, Wet, Dense, Medium-fine grain SAND, Some silt, Trace gravel	SP/SM	
						Boring terminated at 16'. Soil smples SB-18 (4-6) and SB-18 (10-12) were collected for laboratory anlalysis.		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-19
Page 1 of 1
Permit #:
Job #: 842.002

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Date Drilled: 1/18/17
Drilling Co.: Nature's Way
Total Depth: 13'
Method Used: Direct Push
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: 10'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	NA	0-2	1.67	1.4	SILTY SAND: Dark gray to black, Dry, Loose, Some gravel, Trace debris (metal & plastic)	SM	
4	2	NA	2-4	2.0	2.0	SAND: Light brown, Dry, Loose, Medium-fine grain SAND, Trace silt and gravel	SP/SM	
6, 8	3	NA	4-8	2.0	14.7			
10	4	NA	8-10	1.5	12.8	SAND: Black, Wet, Fine grain SAND, Trace silt & gravel, Odor present		
12	5	NA	10-12	1.0	11.7	SAND: Light gray, Sautrated, Dense, Fine grain SAND, Some silt, Trace gravel		
	6	NA	12-13	1.0	10.1			
14						Encounter refusal at 13'. Samples SB-19 (0-2), SB-19 (4-7.5), and SB-19 (10-12) were collected for laboratory analysis		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-20
Page 1 of 1

LOG OF BORING

Project	Camden Iron & Metal LLC	Location	25 Tibbits Ave, Green Island, NY	Permit #:	
Date Drilled	1/18/17	Drilling Co.:	Nature's Way	Job #:	842.002
Total Depth	3.5'	Method Used:	Direct Push		
Inspector	Matt Knight	Organic Vapor Inst:	MiniRAE 3000	Water elv:	Unknown

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
0-3.5	1	NA	0-3.5	0.67	0.3	0-0.5' FILL: Gravel Fill SAND: Brown, Moist, Medium-fine grain SAND, Some gravel & silt	FILL SP/SM	
4						Refusal encountered at 3.5'		

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LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-21
Page 1 of 1
Permit #:
Job #: 842.002

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Date Drilled: 1/19/17
Drilling Co.: Nature's Way
Total Depth: 10'
Method Used: Direct Push
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: 6'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	NA	0-2	1.67	0.4	0-1' FILL: Gravel fill	FILL	
						1-2' SAND: Gray, Dry, Loose, Fine grain SAND,Some silt, Trace gravel	SP/SW	
4	2	NA	2-4	1.5	1.2	SILTY SAND: Dark gray, Dry, Loose, SILTY SAND, Trace gravel	SM	
6, 8	3	NA	4-8	2.0	2.0	SAND: Dark gray, Saturated, Loose, Medium-fine grain SAND, Some gravel, Trace silt	SP/SW	
10	4	NA	8-10	1.67	1.7			
						Refusal encountered at 10'. Soil samples SB-21 (0-2), SB-21 (2-4), and SB-21 (4-8) collected for laboratory analysis		
14								
16								

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-22
Page 1 of 1
Permit #:
Job #: 842.002

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Date Drilled: 1/19/17
Drilling Co.: Nature's Way
Total Depth: 2'
Method Used: Direct Push
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: Unknown

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1 2	1	N/A	0-2	1.67	0.4	SAND: Brown, Dry, Loose, Medium-fine grain SAND, Trace silt and clay, Trace debris (plastic, metal)	SM/SC	
						Boring terminated at 2'. Sample SB-22 (0-2) and MS/MSD samples were collected for laboratory analysis.		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-23
Page 1 of 1
Permit #:
Job #: 842.002

LOG OF BORING

Project: Camden Iron & Metal LLC
Location: 25 Tibbits Ave, Green Island, NY
Date Drilled: 1/19/17
Drilling Co.: Nature's Way
Total Depth: 2'
Method Used: Direct Push
Inspector: Matt Knight
Organic Vapor Inst: MiniRAE 3000
Water elv: Unknown

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1 2	1	NA	0-2	1.5	0.1	SAND: Dark gray, Dry, Loose, Medium-fine grain SAND, Trace silt	SM	
						Boring terminated at 2'. Sample SB-23 (0-2)sample was collected for laboratory analysis.		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-24

LOG OF BORING

Page 1 of 1

Project: Camden Iron & Metal LLC | Location: 25 Tibbits Ave, Green Island, NY | Permit #:

Date Drilled: 1/19/17 | Drilling Co.: Nature's Way | Job #: 842.002

Total Depth: 12' | Method Used: Direct Push

Inspector: Matt Knight | Organic Vapor Inst: MiniRAE 3000 | Water elv: 10'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
						0-8" FILL: Gravel Fill	FILL	
2	1	NA	0-2	2.0	1.1	8'-2' SAND: Gray, Dry, Loose, Fine grain SAND, Some gravel	SW/SP	
4	2	NA	2-4	2.0	2.0	SAND: Gray, Dry, Loose, Fine grain SAND, Some gravel		
6	3	NA	4-8	2.0	30.1	SILTY SAND: Brown, Saturated, SILTY SAND	SM	
8						SAND: Black, Saturated, Soft, Medium-fine grain SAND, with silt, some gravel, slight odor	SW/SP	
10	4	NA	8-10	1.5	20.1	SAND: Dark gray, Saturated, Medium-fine grain SAND, Trace silt, Some gravel		
12	5	NA	10-12	2.0	8.9	SAND & GRAVEL: Light gray, Saturated, Coarse-fine grain SAND & GRAVEL mixture, Trace clay	GW	
						Refusal encountered at 12' Soil samples SB-24 (0-2) & SB-24 (4-8) collected for laboratory analysis		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

BORING #: SB-25
Page 1 of 1

LOG OF BORING

Project: Camden Iron & Metal LLC | Location: 25 Tibbits Ave, Green Island, NY | Permit #:
Date Drilled: 1/19/17 | Drilling Co.: Nature's Way | Job #: 842.002
Total Depth: 12' | Method Used: Direct Push
Inspector: Matt Knight | Organic Vapor Inst: MiniRAE 3000 | Water elv: 8'

Depth (feet)	Sample No.	Blows/6" 140 lbs.	Sample Inter.	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1	NA	0-2	1.0	0.1	SAND: Dark Gray, Dry, Loose, Medium-fine grain SAND, Trace silt and gravel	SW/SP	
4	2	NA	2-4	1.0	0.3	SAND: Brown, Dry, Loose, Coarse-fine grain SAND, Trace silt, Some gravel		
6, 8	3	NA	4-8	1.0	0.2			
10, 12	4	NA	8-12	1.0	0.1	SAND: Brown, Saturated, Loose, Coarse-fine grain SAND, Trace silt, Some gravel		
14						Boring terminated at 12' Soil samples SB-25 (0-2) & SB-25 (4-8) collected for laboratory analysis		
16								

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # TP-1

LOG OF TEST HOLE

Project Camden Iron & Metal LLC

Permit #:

Date Excavated 2/6/2017

Job #: 842.002

Total Depth 4'

Inspector P. von Schondorf Organic Vapor Inst: MiniRAE 3000

Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
1	1		0	Sample 0-1' Misc. Soil mixed with fine particules of metal, glass and brick.	Fill	
2			0	Fill coarsens with depth. Large pieces of metal, concrete and brick.	Fill	
3	2		0	Sample 3 to 4'	Fill	
4			0	Fill same as above. Concrete slab encountered at 4'. Used hammer to probe 1' still in concrete.	Concrete	
5						
6						

Location Diagram

North

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # TP-2

LOG OF TEST HOLE

Project: Camden Iron & Metal LLC
Permit #:
Date Excavated: 2/6/2017
Job #: 842.002
Total Depth: 9'
Inspector: P. von Schondorf
Organic Vapor Inst: MiniRAE 3000
Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1		0	Sample 0-1' Misc. Soil mixed with fine particules of metal, plastic/fibers	Fill	
4			0	Same as above, larger pieces of metal, tire, concrete. Slight petroleum odor.	Fill	
6						
8	2		0	Same as above, some ash material found in layers.	Fill	
9			0	Same as above.	Fill	
10						
6						

Location Diagram

North

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

Test Pit # TP-3

LOG OF TEST HOLE

Project: Camden Iron & Metal LLC | Permit #:

Date Excavated: 2/6/2017 | Job #: 842.002

Total Depth: 9'

Inspector: P. von Schondorf | Organic Vapor Inst: MiniRAE 3000 | Water elv: Unknown

Depth (feet)	Sample No.	Sample Inter.	Org. Vap (ppm)	Sample Description	Unified Class.	Permeability
2	1		0	Sample 0-1' Misc. Soil mixed with fine particules of metal, plastic/fibers	Fill	
4			0	Same as above, larger pieces of metal, tire, concrete. Slight petroleum odor.	Fill	
6						
8	2		0	Brown, Gravel and sand, little silt, occassional layers of ash	Fill/GM	
9	3		0	Brown, Gravel and sand.	GM	
10						
6						

Location Diagram

North

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APPENDIX 4

MONITORING WELL LOGS

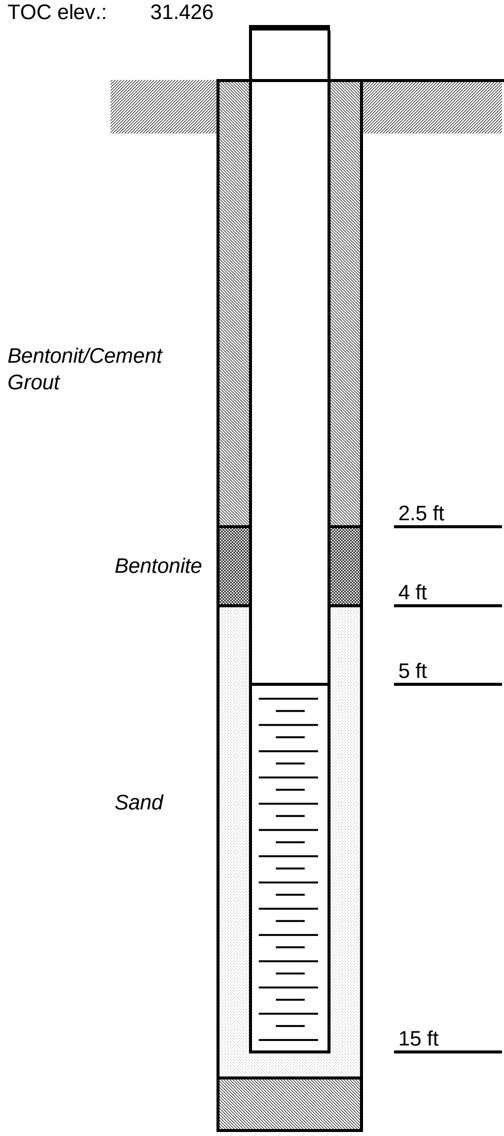
LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

WELL CONSTRUCTION SUMMARY

Project:	Eastern Metal Recycling	Location:	Green Island, NY	Well No.:	MW-1/SB-6
				Permit No.:	

TOC elev.: 31.426



DRILLING SUMMARY

Drilling Company:	Nature's Way Env.	Drillers:	
Drill Rig/Model:	Acker 82		
Borehole Diameters:	4.25	Drilling Fluid:	None
Bits/Depths:	Hollow stem augers		
Total Depth:	15 ft.	Depth To Water:	13.3 ft.
Supervisor Geologist:	Matthew Knight		

WELL DESIGN

Casing Material:	PVC	Diameter:	2-in.
Screen Size:	10 ft	Diameter:	2-in.
Slot Size:	0.01 in.	Setting:	5 to 15 ft
Backfill	Sand	Setting:	4 to 15 ft.
Filter Material:		Setting:	
Seals Material:	Bentonite	Setting:	2.5 to 4 ft.
Sand Cap		Setting:	
Grout:	Cement bentonite	Setting:	0 to 2.5 ft.
Surface Casing Material:	Steel	Setting:	0 to +2.5 ft.

TIME LOG

	Started	Completed
Drilling:	9-Jan-17	9-Jan-17
Installation:	9-Jan-17	9-Jan-17
Development:	24-Jan-17	24-Jan-17

WELL DEVELOPMENT

Method:	Bailing		
Static Depth to Water:	13.3 ft. bgs.		
Pumping Depth To Water:	N/A		
Pumping Rate:	N/A	Spec. Capacity:	
Volume Pumped:	Unk.		

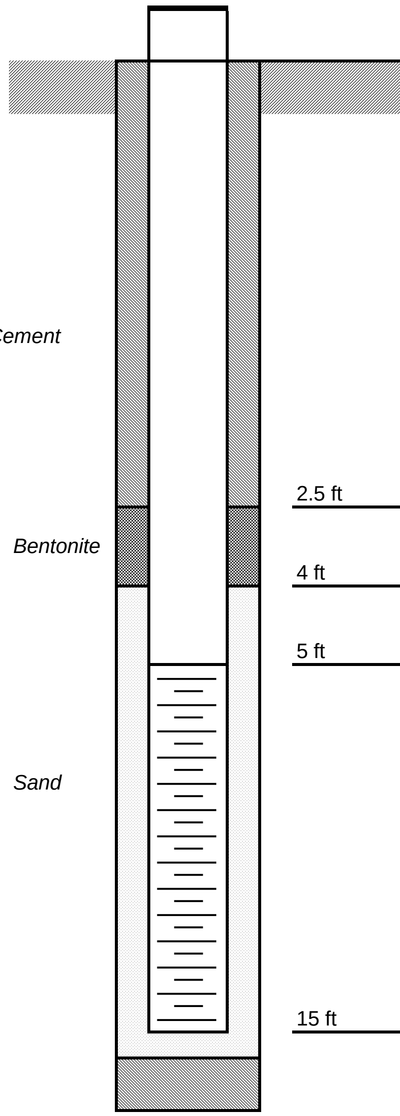
LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

WELL CONSTRUCTION SUMMARY

Project: Eastern Metal Recycling   Location: Green Island, NY   Well No.: MW-2/SB-14
Permit No.:

TOC elev.: 29.904



DRILLING SUMMARY

Drilling Company:	Nature's Way Env.	Drillers:	
Drill Rig/Model:	Acker 82		
Borehole Diameters:	4.25	Drilling Fluid:	None
Bits/Depths:	Hollow stem augers		
Total Depth:	15 ft.	Depth To Water:	12.4 ft.
Supervisor Geologist:	Matthew Knight		

WELL DESIGN

Casing Material:	PVC	Diameter:	2-in.
Screen Size:	10 ft	Diameter:	2-in.
Slot Size:	0.01 in.	Setting:	5 to 15 ft
Backfill	Sand	Setting:	4 to 15 ft.
Filter Material:		Setting:	
Seals Material:	Bentonite	Setting:	2.5 to 4 ft.
Sand Cap		Setting:	
Grout:	Cement bentonite	Setting:	0 to 2.5 ft.
Surface Casing Material:	Steel	Setting:	0 to +2.5 ft.

TIME LOG

	Started	Completed
Drilling:	10-Jan-17	10-Jan-17
Installation:	10-Jan-17	10-Jan-17
Development:	24-Jan-17	24-Jan-17

WELL DEVELOPMENT

Method:	Bailing		
Static Depth to Water:	12.46 bgs		
Pumping Depth To Water:	N/A		
Pumping Rate:	N/A	Spec. Capacity:	
Volume Pumped:	Unk.		

LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

WELL CONSTRUCTION SUMMARY

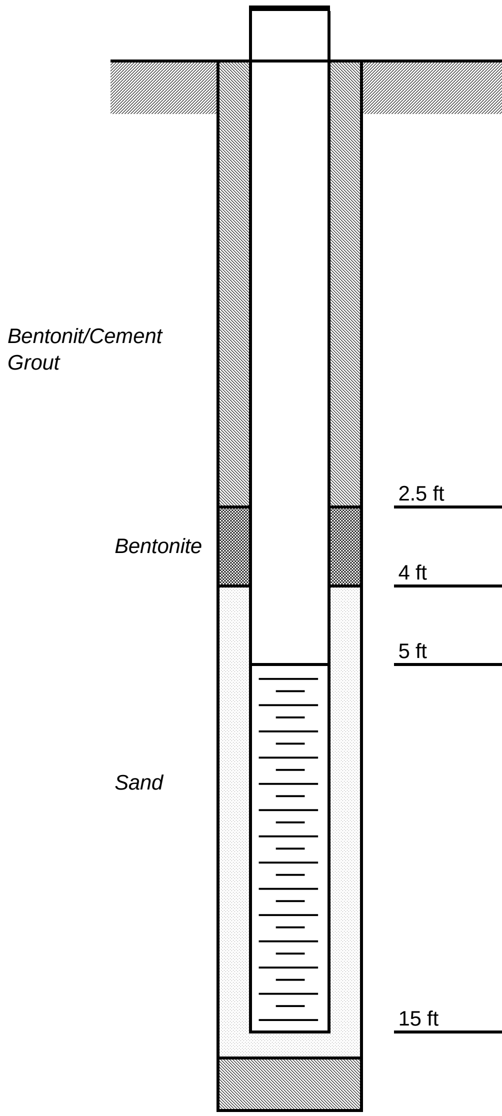
Project: Eastern Metal Recycling

Location: Green Island, NY

Well No.: MW-3/SB-8

Permit No.:

TOC elev.: 30.776



DRILLING SUMMARY

Drilling Company:	Nature's Way Env.	Drillers:	
Drill Rig/Model:	Acker 82		
Borehole Diameters:	4.25	Drilling Fluid:	None
Bits/Depths:	Hollow stem augers		
Total Depth:	17 ft.	Depth To Water:	13.1 ft.
Supervisor Geologist:	Matthew Knight		

WELL DESIGN

Casing Material:	PVC	Diameter:	2-in.
Screen Size:	10 ft	Diameter:	2-in.
Slot Size:	0.01 in.	Setting:	5 to 15 ft
Backfill	Sand	Setting:	4 to 15 ft.
Filter Material:		Setting:	
Seals Material:	Bentonite	Setting:	2.5 to 4 ft.
Sand Cap		Setting:	
Grout:	Cement bentonite	Setting:	0 to 2.5 ft.
Surface Casing Material:	Steel	Setting:	0 to +2.5 ft.

TIME LOG

	Started	Completed
Drilling:	10-Jan-17	10-Jan-17
Installation:	11-Jan-17	11-Jan-17
Development:	24-Jan-17	24-Jan-17

WELL DEVELOPMENT

Method:	Bailing		
Static Depth to Water:	13.15 ft. bgs		
Pumping Depth To Water:	N/A		
Pumping Rate:	N/A	Spec. Capacity:	
Volume Pumped:	Unk.		

LEADER PROFESSIONAL SERVICES

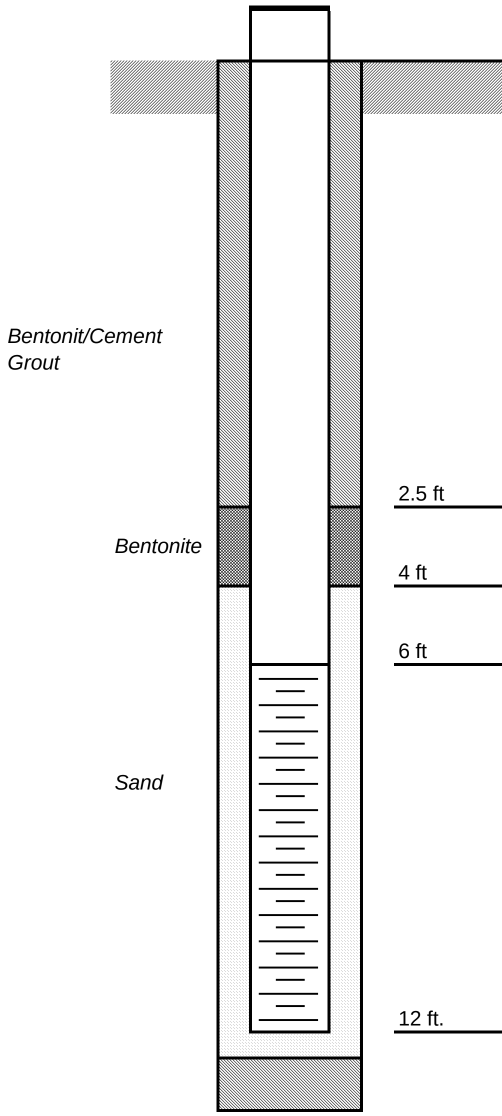
Environmental Engineers & Scientists

WELL CONSTRUCTION SUMMARY

Project: Eastern Metal Recycling   Location: Green Island, NY   Well No.: MW-4/SB 15

Permit No.:

TOC elev.: 30.331



DRILLING SUMMARY

Drilling Company:	Nature's Way Env.	Drillers:	
Drill Rig/Model:	Acker 82		
Borehole Diameters:	4.25	Drilling Fluid:	None
Bits/Depths:	Hollow stem augers		
Total Depth:	12 ft.	Depth To Water:	8.2 ft.
Supervisor Geologist:	Matthew Knight		

WELL DESIGN

Casing Material:	PVC	Diameter:	2-in.
Screen Size:	6 ft	Diameter:	2-in.
Slot Size:	0.01 in.	Setting:	6 to 12 ft
Backfill	Sand	Setting:	4 to 12 ft.
Filter Material:		Setting:	
Seals Material:	Bentonite	Setting:	2.5 to 4 ft.
Sand Cap		Setting:	
Grout:	Cement bentonite	Setting:	0 to 2.5 ft.
Surface Casing Material:	Steel	Setting:	0 to +2.5 ft.

TIME LOG

	Started	Completed
Drilling:	11-Jan-17	11-Jan-17
Installation:	11-Jan-17	11-Jan-17
Development:	24-Jan-17	24-Jan-17

WELL DEVELOPMENT

Method:	Bailing		
Static Depth to Water:	8.2 ft. bgs		
Pumping Depth To Water:	N/A		
Pumping Rate:	N/A	Spec. Capacity:	
Volume Pumped:	Unk.		

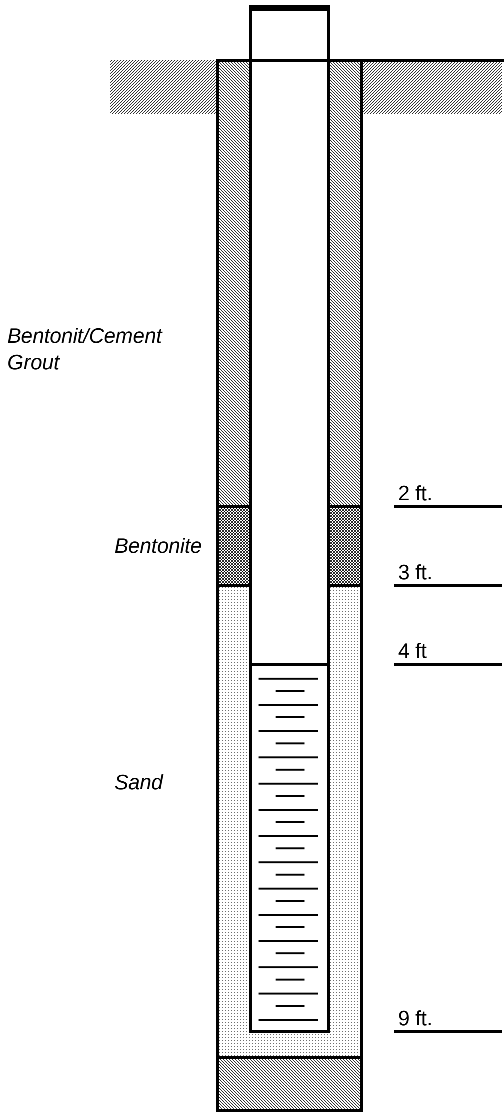
LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

WELL CONSTRUCTION SUMMARY

Project: Eastern Metal Recycling Location: Green Island, NY Well No.: MW-5/SB 16
Permit No.:

TOC elev.: 30.467



DRILLING SUMMARY

Drilling Company:	Nature's Way Env.	Drillers:	
Drill Rig/Model:	Acker 82		
Borehole Diameters:	4.25	Drilling Fluid:	None
Bits/Depths:	Hollow stem augers		
Total Depth:	9 ft.	Depth To Water:	7.7 ft.
Supervisor Geologist:	Matthew Knight		

WELL DESIGN

Casing Material:	PVC	Diameter:	2-in.
Screen Size:	5 ft	Diameter:	2-in.
Slot Size:	0.01 in.	Setting:	4 to 9 ft
Backfill	Sand	Setting:	3 to 9 ft.
Filter Material:		Setting:	
Seals Material:	Bentonite	Setting:	2 to 3 ft.
Sand Cap		Setting:	
Grout:	Cement bentonite	Setting:	0 to 2 ft.
Surface Casing Material:	Steel	Setting:	0 to +2.5 ft.

TIME LOG

	Started	Completed
Drilling:	11-Jan-17	11-Jan-17
Installation:	11-Jan-17	11-Jan-17
Development:	24-Jan-17	24-Jan-17

WELL DEVELOPMENT

Method:	Bailing		
Static Depth to Water:	7.7 ft. bgs		
Pumping Depth To Water:	N/A		
Pumping Rate:	N/A	Spec. Capacity:	
Volume Pumped:	Unk.		

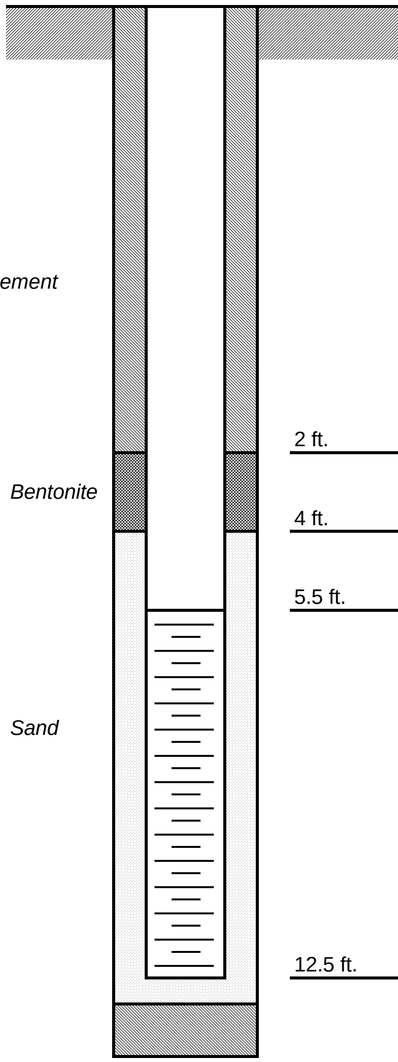
LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

WELL CONSTRUCTION SUMMARY

Project: Eastern Metal Recycling
Location: Green Island, NY
Well No.: MW-6/SB 2
Permit No.:

TOC elev.: 26.941



DRILLING SUMMARY

Drilling Company: Nature's Way Env.
Drillers:
Drill Rig/Model: Acker 82
Borehole Diameters: 4.25
Drilling Fluid: None
Bits/Depths: Hollow stem augers
Total Depth: 12.5 ft.
Depth To Water: 7.6 FT.
Supervisor Geologist: Matthew Knight

WELL DESIGN

Casing Material:	PVC	Diameter:	2-in.
Screen Size:	5 ft	Diameter:	2-in.
Slot Size:	0.01 in.	Setting:	5.5 to 12.5 ft
Backfill	Sand	Setting:	4 to 12.5 ft.
Filter Material:		Setting:	
Seals Material:	Bentonite	Setting:	2 to 4 ft.
Sand Cap		Setting:	
Grout:	Cement bentonite	Setting:	0 to 2 ft.
Surface Casing Material:	Steel	Setting:	0 to +2.5 ft.

TIME LOG

	Started	Completed
Drilling:	12-Jan-17	12-Jan-17
Installation:	12-Jan-17	12-Jan-17
Development:	24-Jan-17	24-Jan-17

WELL DEVELOPMENT

Method: Bailing
Static Depth to Water: 7.6 ft. bgs
Pumping Depth To Water: N/A
Pumping Rate: N/A
Spec. Capacity:
Volume Pumped: Unk.

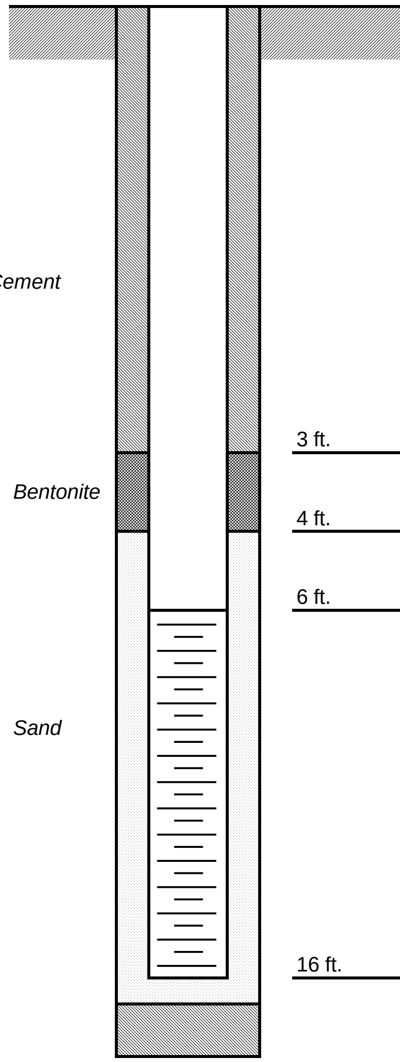
LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

WELL CONSTRUCTION SUMMARY

Project: Eastern Metal Recycling
Location: Green Island, NY
Well No.: MW-7/SB 18
Permit No.:

TOC elev.: 28.032



DRILLING SUMMARY

Drilling Company:	Nature's Way Env.	Drillers:	
Drill Rig/Model:	Acker 82		
Borehole Diameters:	4.25	Drilling Fluid:	None
Bits/Depths:	Hollow stem augers		
Total Depth:	16 ft.	Depth To Water:	5 ft.
Supervisor Geologist:	Matthew Knight		

WELL DESIGN

Casing Material:	PVC	Diameter:	2-in.
Screen Size:	10 ft	Diameter:	2-in.
Slot Size:	0.01 in.	Setting:	6 to 16 ft
Backfill	Sand	Setting:	4 to 16 ft.
Filter Material:		Setting:	
Seals Material:	Bentonite	Setting:	3 to 4 ft.
Sand Cap		Setting:	
Grout:	Cement bentonite	Setting:	1.5 to 3 ft.
Surface Casing Material:	Steel	Setting:	flush mount

TIME LOG

	Started	Completed
Drilling:	17-Jan-17	17-Jan-17
Installation:	17-Jan-17	17-Jan-17
Development:	1-Feb-17	1-Feb-17

WELL DEVELOPMENT

Method:	Bailing		
Static Depth to Water:	5 ft.		
Pumping Depth To Water:	N/A		
Pumping Rate:	N/A	Spec. Capacity:	
Volume Pumped:	Unk.		

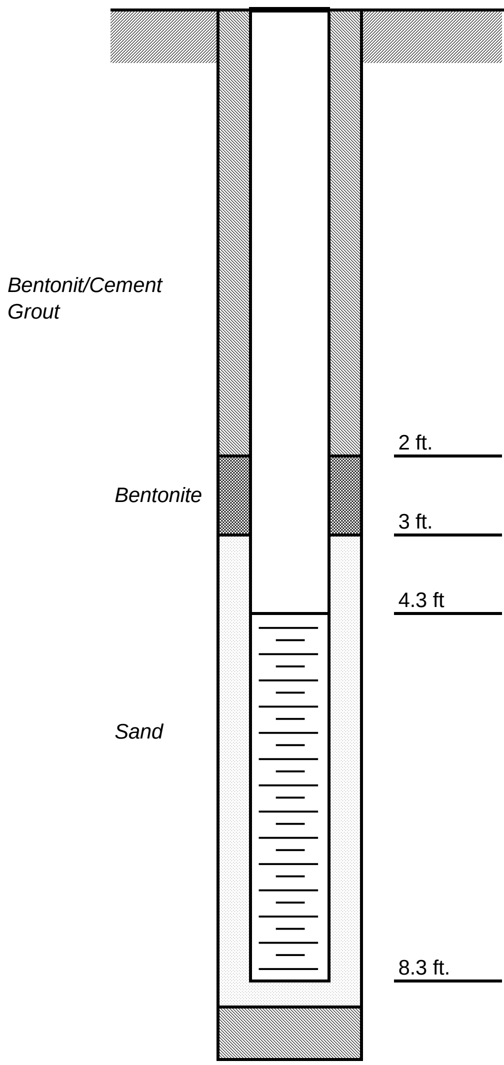
LEADER PROFESSIONAL SERVICES

Environmental Engineers & Scientists

WELL CONSTRUCTION SUMMARY

Project: Eastern Metal Recycling
Location: Green Island, NY
Well No.: MW-8/SB 12
Permit No.:

TOC elev.: 28.591



DRILLING SUMMARY

Drilling Company:	Nature's Way Env.	Drillers:	
Drill Rig/Model:	Acker 82		
Borehole Diameters:	4.25	Drilling Fluid:	None
Bits/Depths:	Hollow stem augers		
Total Depth:	8.3 ft.	Depth To Water:	5 ft.
Supervisor Geologist:	Matthew Knight		

WELL DESIGN

Casing Material:	PVC	Diameter:	2-in.
Screen Size:	4 ft	Diameter:	2-in.
Slot Size:	0.01 in.	Setting:	4.3 to 8.3 ft
Backfill	Sand	Setting:	3 to 8.3 ft.
Filter Material:		Setting:	
Seals Material:	Bentonite	Setting:	2 to 3 ft.
Sand Cap		Setting:	
Grout:	Cement bentonite	Setting:	0 to 2 ft.
Surface Casing Material:	Steel	Setting:	flush mount

TIME LOG

	Started	Completed
Drilling:	16-Jan-17	16-Jan-17
Installation:	17-Jan-17	17-Jan-17
Development:	1-Feb-17	1-Feb-17

WELL DEVELOPMENT

Method:	Bailing		
Static Depth to Water:	5 ft.		
Pumping Depth To Water:	N/A		
Pumping Rate:	N/A	Spec. Capacity:	
Volume Pumped:	Unk.		

APPENDIX 5

EXCAVATION WORK PLAN (EWP)

1.0 NOTIFICATION

At least 15 days prior to the start of any intrusive (i.e., excavation within the fence line of the property), the Site owner or their representative will notify the NYSDEC. Table 1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of Site-related contact information is provided in Appendix 2 (of the SMP).

Table 1: Notifications*

Kyle Forster NYSDEC Project Manager	(518)402-8644, kyle.forster@dec.ny.gov
Sarah Quandt, NYSDEC Section Chief	(518)402-9116, sarah.quandt@dec.ny.gov
Kelly Lewandowski NYSDEC Site Control	(518)402-9553, kelly.lewandowski@dec.ny.gov

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

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for Site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's HASP, in electronic format, if it differs from the HASP provided in Appendix 10 of this SMP;
- Identification of disposal facilities for potential waste streams, if known at the time of notification; and

- Identification of sources of any anticipated backfill, along with all required chemical testing results.

2.0 SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed by a Qualified Environmental Professional during all excavations within the fence line of the property. Soil screening will be performed during all invasive work and will include all excavation work performed during any site redevelopment or maintenance work, such as excavations for foundations and underground utility work, after issuance of the COC.

Soils will be segregated based on screening results into material that potentially require off-Site disposal. In general soil will be segregated according to: 1) material that is solid waste/debris (for example scrap metal, automotive debris, wood, plastics, etc. that can be removed and sorted with excavating equipment); 2) material that is stained, gives off odors or has organic compounds as indicated by portable organic vapor meters; and 3) other material that is not suitable for reuse or backfilling. For example materials that cannot be compacted to a suitable density for the future use of the area or cannot not support a structure that will be erected in the specific area. If the material cannot be reused because it is unsuitable for construction, the material will be tested to determine if the material can be reused on-Site without a cover (meeting the current SCO for the property use). The remaining materials will be characterized for off-Site disposal. Further discussion of off-Site disposal of materials and on-Site reuse is provided in Sections 6.0 and 7.0 of this Appendix.

3.0 SOIL STAGING METHODS

Imported soil stockpiles will be placed on one of the asphalt or concrete surfaces until it is ready to be used. The piles will be covered with anchored tarps as needed to prevent the creation of dust. Stockpiles of material removed from an excavation will be placed on plastic either next to the excavation or on designated asphalt or concrete surface, covered with an anchored tarp cover, and surrounded by hay bales or silt fencing; if there is a potential for runoff from the pile could potentially leave the Site. If the clean cover material (gravel or soil) is removed prior to the excavation work and, will be replaced at the completion of the project, then the piles can be placed on the ground provided there are no liquids or groundwater leaking from the pile.

Stockpiles will be kept covered during non-work hours with appropriately anchored tarps. During the workday, piles may be uncovered if actively being used unless there are dust and runoff concerns.

Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced. Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by the NYSDEC.

4.0 EXCAVATION AND WASTE LOAD-OUT

A Qualified Environmental Professional or Professional Engineer licensed in the State of New York or a designee under their supervision will oversee invasive work and the subsequent handling of excavated material or imported clean soil.

The owner of the property and their contractors are responsible for safe execution of all work performed under this EWP.

The presence of utilities and easements on the Site will be investigated prior to the project start by a person knowledgeable of conducting those investigations. The contractor will be responsible to investigate utilities and easements. It will be determined whether the utilities or easements present a risk or impediment to the planned work under this SMP.

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

A truck wash/cleaning station will be operated on-Site, to remove potentially contaminated material from vehicles or to remove loose material that could spill out on clean areas of the Site or on the public street. The Qualified Environmental Professional/Professional Engineer or their designee will be responsible for ensuring that all outbound trucks are being cleaned as needed, at the truck wash/cleaning station before leaving the Site until the activities performed under this section are complete. Wash waters will be collected and disposed of off-Site in an appropriate manner.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site soil tracking on to the public street(s).

The contractor will be responsible for ensuring all access and egress points are clean of any loose materials derived from the Site or brought to the Site. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

5.0 WASTES TRANSPORTED OFF-SITE

The over the road transport of waste 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 bed liners will be used.

Truck transport routes are shown on Figure 18 of the SMP. All commercial trucks will exit the Site and immediately make a left turn onto Cannon Street and head north to Veterans Memorial Drive. At the next intersection, the trucks will turn left on to Veterans Memorial Drive and left again on to Dyke Avenue/Cohos Avenue. At Tibbits Avenue trucks will turn right and proceed to Route 787. This is a commercial truck route and is also identified by street-side signs.

Trucks will be prohibited from stopping and idling in the residential area next to the project Site. Queuing of trucks will be performed on-Site in order to minimize off-Site disturbance. Off-Site queuing will be prohibited.

6.0 OFF-SITE WASTE DISPOSAL

All excavated material fitting into the previously defined groups for segregating will be treated as waste and will be transported off-Site for disposal in accordance with all local, State and Federal regulations. Solid waste composed of wood and concrete, and scrap metal and automotive debris, can be classified, as allowed by the regulations and the receiving facility, as either a recyclable material or construction and demolition debris.

If material from this Site is proposed for off-Site use (i.e. clean soil removed for development purposes), a formal request will be made to the NYSDEC, which provides analytical data, the location the materials will be reused, and a description for the reuse. Off-Site reuse of the materials from this Site will not occur without formal NYSDEC approval.

In the pre-excavation notification to NYSDEC, the property owner/contractor will identify a plan for the characterization and disposal of the waste materials to be generated by the planned activity. This will include estimated quantities, characterization analysis if available and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C&D debris recovery facility, if known. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the PRR. 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 consistent with 6NYCRR Parts 360, 361, 362, 363, 364 and 365. Material that does not meet Unrestricted SCOs is prohibited from being disposed at a New York State C&D debris recovery facility (6NYCRR Subpart 361-5 registered or permitted facility).

7.0 MATERIALS REUSE ON-SITE

A Qualified Environmental Professional or a Professional Engineer, licensed in New York, will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material (see Section 2) does not remain on-Site. A demarcation layer and final cover or an impervious surface (pavement, concrete, building slabs) will be maintained over remaining contamination. Soil/material being proposed for on-Site reuse will be evaluated following DER-10 Section 5.4(e) and Tables 5.4(e)4 and 5.4(e)10, and Part 375-6.7(d). These soils will not be used for utility excavation backfill, as a part of landscaping, or cover for the berm unless they approved by NYSDEC. As refenced in Section 3.3.1 of the SMP, it is understood that the perimeter soil berms have been remediated to Industrial Use SCO's and on-Site reuse will be permitted under the ground surface cover system.

Proposed materials for reuse on-Site must be sampled for full suite analytical parameters including per- and polyfluoroalkyl substances ("PFAS") and 1,4-Dioxane. The sampling frequency will be in accordance with DER-10 Table 5.4(e)10 unless prior approval is obtained from the NYSDEC Project Manager for modification of the sampling frequency. The analytical results of soil/fill material testing must meet the Site use criteria presented in NYSDEC DER-10 Appendix 5 – "Allowable Constituent Levels for Imported Fill or Soil" for all constituents listed, and the NYSDEC's "Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances" (October 2020 or date of current version, whichever is later) guidance values. Approvals for modification to the analytical parameters must be obtained from the NYSDEC Project Manager prior to the sampling event. Soil/fill material for reuse will be segregated and staged as described in Sections 2.0, 3.0 and 4.0 of this EWP. The anticipated size and location of stockpiles will be provided in the 15-day notification to the NYSDEC Project Manager. Stockpile locations will be based on the location of Site excavation activities and proximity to nearby Site features. Material reuse on-Site will comply with requirements of NYSDEC DER-10 Section 5.4(e)4. Any modifications to the requirements of DER-10 Section 5.4(e)4 must be approved by the NYSDEC Project Manager.

Soil/fill material for reuse on-Site will be segregated and staged as described in Sections 2.0, 3.0, and 4.0 of this EWP. The anticipated size and location of stockpiles will be provided in the 15-day notification to the NYSDEC project manager. Stockpile locations will be based on the location of Site excavation activities and proximity to nearby Site features. Material reuse on-Site will comply with requirements of NYSDEC DER-10 Section 5.4(e)4. Any modifications to the requirements of DER-10 Section 5.4(e)4 must be approved by the NYSDEC project manager.

For any standing building or structure that is being proposed for demolition, with the plan of reusing the brick and concrete as fill on the Site, an asbestos survey will be conducted to identify the need for an asbestos abatement. The results will be reported to the NYSDEC and the New York State Department of Labor, as required by regulation. Concrete crushing or processing on-Site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site will not be reused on-Site.

8.0 FLUIDS MANAGEMENT

All liquids being managed on the Site, including but not limited to, excavation dewatering, decontamination waters and groundwater monitoring well purge and development waters, will be containerized for sampling to determine how the material can be handled 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 unless prior approval is obtained from NYSDEC. Dewatering fluids resulting from storm events or runoff will not be discharged to the Site sewer without prior approval from the NYSDEC and the local sewer authority and local municipality, as applicable.

The discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream, river or storm sewer) or sanitary sewer will be performed with the approval of the NYSDEC and the local municipality, as applicable, and with a SPDES permit.

9.0 COVER SYSTEM RESTORATION

After the completion of soil removal or any other invasive activities impacting the cover system or the perimeter berms, the cover system will be restored in a manner that complies with the pre-existing cover condition or other cover method consistent with the ROD/Decision Document. The existing on-Site cover system is comprised of a minimum of 12-inches of clean gravel or recycled concrete aggregate (“RCA”), asphalt pavement, concrete pavement, concrete pads, and concrete floor slabs. A demarcation layer of black geo-textile/filter fabric is present beneath the gravel and RCA; if disturbed this layer will be replaced with orange snow fencing material, colored geotextile or equivalent material, etc. to provide a visual reference to the top of the remaining suspected contaminated zone. If the type of cover system changes (i.e., a gravel cover is replaced by asphalt), this will constitute a modification of the cover system. A figure showing the modified surface will be included in the subsequent PRR and in an updated SMP.

10.0 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the Site will be approved by the qualified environmental professional, as defined in 6 NYCRR Part 375, and will be in compliance with provisions in this SMP prior to receipt at the Site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html or https://www.dec.ny.gov/docs/remediation_hudson_pdf/requesttoreusesoil.pdf, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review. A copy of the form is attached to this appendix.

All imported soils will meet the backfill and cover soil quality standards established in 6 NYCRR 375-6.7(d) and DER-10 Appendix 5 for industrial use. Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in Table 375-6.7(d). Soils that meet general fill requirements under 6 NYCRR Part 360.13, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC project manager. Soil material will be sampled for the full suite of analytical parameters, including PFAS and 1, 4-dioxane. 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.

Material from industrial Sites, spill Sites or other environmental remediation Sites or potentially contaminated Sites will not be imported to the Site unless approved by NYSDEC for a particular use on the Site.

11.0 STORMWATER POLLUTION PREVENTION

For large excavations or large areas of disturbed soil, the requirements for a Stormwater Pollution Prevention Plan ("SWPPR") should be reviewed to determine if a plan needs to be prepared. If a plan is needed for the construction, a copy of the plan should be on Site so NYSDEC or a local code enforcement official can review it. In general, silt barriers or hay bales will be installed around the entire perimeter of the soil excavation/disturbance area or as required by the Stormwater Pollution Prevention Plan.

Silt barriers and hay bales will be inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by the NYSDEC. All necessary repairs due to damage or weathering shall be made immediately. All undercutting or erosion of the silt barrier anchor shall be repaired immediately with appropriate backfill materials and as needed an engineering solution to the problem will be employed. Accumulated sediments will be removed as required to keep the barrier and hay bales functional.

Erosion and sediment control measures identified in the SMP or in the SWPRR, shall be inspected 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.

12.0 EXCAVATION CONTINGENCY PLAN

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

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes [TAL metals, TCL volatiles and semi-volatiles (including 1,4-dioxane), TCL pesticides and PCBs, and PFAS], unless the Site history and previous sampling results provide sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC project manager for approval prior to sampling. Any tanks will be closed as per NYSDEC regulations and guidance.

Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone within two hours 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 PRR.

13.0 COMMUNITY AIR MONITORING PLAN

A Generic CAMP is provided as Appendix 6 of this SMP and should be used as a guide for a project specific CAMP. At the CAMP will include:

- Details of the perimeter air monitoring program;
- Action levels to be used;
- Methods for air monitoring ;
- Analytes measured and instrumentation to be used;
- A figure of the Site and potential locations for air monitoring instrumentation. These locations will be based on the prevailing wind direction but also on the location of potential receptors, including parks, schools, residential areas, etc.

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

14.0 ODOR CONTROL PLAN

The odor control plan is capable of controlling emissions of nuisance odors from the Site. Specific odor control methods to be used on a routine basis will include soil covers, plastic covers, water, or proprietary chemical products. If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted and the source of the odors will be identified and mitigated. Work will not resume until the nuisance odor has 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 contractor, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent the migration of odors off-Site. 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 or a structure; 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) use of chemical odorants in spray or misting systems; (e) use of staff to monitor odors in surrounding neighborhoods and (f) as soon as possible the direct loading for disposal of the impacted material.

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, an engineered solution to the odor control will be designed and proposed to NYSDEC/NYSDOH before moving forward.

15.0 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 using a dedicated on-Site water truck for road wetting. The truck will be 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.

APPENDIX 6

GENRIC COMMUNITY AIR MONITORING PROGRAM

Generic Community Air Monitoring Plan
R. Freedman & Sons Site
Site No. 401033
Green Island, New York

1.0 Overview

This Community Air Monitoring Plan ("CAMP") has been prepared for the R. Freedman & Son Site No. 401033. The CAMP provides the methods and procedures for the real-time monitoring for volatile organic compounds ("VOCs") and particulates (i.e. dust) at the downwind perimeter of each designated work area when certain site investigation or remediation activities are in progress. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, it to provide a measure of protection for the downwind community (i.e. off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The site-specific CAMP for supplemental investigation and interim remedial measures ("IRM") presented below will be sufficient to cover the planned site activities. The specific requirements have been reviewed with the Site Safety Officer and submitted to the New York State Department of Environmental Conservation ("NYSDEC") and the New York State Department of Health ("NYSDOH") to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures.

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

2.0 Community Air Monitoring Plan

The site-specific CAMP for site activities involving on-site soil moving and excavation. The remedial investigation data indicates semivolatile organic compounds ("SVOCs"), PCBs, and metals are present in the soil and VOCs are located only in the groundwater. This CAMP was prepared for a project where there is no possibility of encountering groundwater, but real-time air monitoring for VOCs and particulate levels at the perimeter of the exclusion zone and work area will be done. As the need arises, downwind areas of the Site will be monitored, and corrective actions taken to minimize the migration of contaminants.

2.1 Continuous Monitoring

Continuous air monitoring for dust and VOCs will be required for all intrusive in-ground activities conducted during the planned activities. These activities will include: excavation of pits, removal of hard surface materials, and soil/waste excavation and handling.

2.2 Periodic Monitoring

Periodic monitoring for VOCs will be required during non-intrusive site activities such as the collection of soil samples. Periodic monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location or disturbing the soil during sampling, and taking a reading prior to leaving a sample location. If sampling or excavation (surface disturbance) is within 10-feet of an occupied building at the Site, continuous monitoring for VOCs is warranted. As sampling data is obtained, the CAMP will be re-evaluated.

2.2.1 VOC Monitoring, Response Levels, and Actions

VOCs will be monitored at the downwind perimeter of the immediate work area (i.e. the exclusion zone) on a continuous basis or as wind speed and as the concentration of VOCs at the point of measurement dictate. Upwind concentrations will be measured at the start of each workday and periodically (every 15 to 30 minutes) thereafter to establish background conditions, particularly if wind direction changes. The monitoring work will be performed using at least an organic vapor analyzer with a photoionization or flame ionization detector. The equipment will be checked in the field for calibration at least daily using a gas standard. As the field calibration of an instrument drifts beyond an acceptable limit a complete calibration will be performed, or the equipment will be replaced. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or the exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5.0 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or the exclusion zone persist at levels in excess of 5.0 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less. For the off-site work, total VOCs will not exceed 5.0 ppm over the background concentration without corrective action.

    a. If the VOCs level is above 25.0 ppm at the perimeter of the work area, activities must be shutdown.

    b. All 15-minute readings must be recorded and be available for NYSDEC and NYSDOH personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

2.2.2 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 during actions where larger areas of the ground surface are disturbed with powered equipment (i.e., excavator) or when un-containerized waste is being handled. For off-site activities, particulate monitoring will also be done between the soil removal and the nearest residence.

The particulate monitoring equipment will be able to measure real time date to particulate sizes of less than 10.0 micrometers (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 provide an audible alarm to indicate an exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (“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 must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be terminated, and a re-evaluation of activities initiated. Work can 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 of the upwind level and preventing visible dust migration.

3. If dust exceeds 150 mcg/m^3 at the upwind monitoring location during the IRM or supplemental investigative activities, Leader will instruct the EMR site manager, if appropriate, to take appropriate corrective action. If dust from the work activities or waste handling activities exceed project thresholds at the downwind monitoring location compared to the upwind monitoring location the field manager will determine what is causing the problem and seek a remedy, and if needed, they will stop work until it can be corrected. As a result, air monitors will be located up and down wind of the investigation work.

4. All readings must be recorded and available for NYSDEC, NYSDOH and Albany County DOH personnel to review.

The responsibility for implementing the SMP for the R. Freedman & Son Site (the "Site"), No. 401033, is the current Site owner and Remedial Party ("RP"). The owner(s) is currently Eastern Metal Recycling L.L.C.

Nothing on this page shall supersede the provisions of an Environmental Easement, Consent Order, Consent Decree, agreement, or other legally binding document that affects rights and obligations relating to the Site.

Site Owner's Responsibilities:

1. The owner will follow the provisions of the SMP as they relate to future use of the Site, Site construction and excavation at the Site.

2. In accordance with a periodic time frame determined by the NYSDEC, the owner shall periodically certify, in writing, that all Institutional Controls set forth in a(n) Environmental Easement remain in place and continue to be complied with. The owner shall provide a written certification to the RP, upon the RP's request, in order to allow the RP to include the certification in the Site's PRR certification to the NYSDEC.

3. In the event the Site is delisted, the owner remains bound by the Environmental Easement and will submit, upon request by the NYSDEC, a written certification that the Environmental Easement is still in place and has been complied with.

4. The owner will grant access to the Site to the RP and the NYSDEC and its agents for the purposes of performing activities required under the SMP and assuring compliance with the SMP.

5. The owner is responsible for assuring the security of the remedial components located on its property to the best of its ability. In the event that damage to the remedial components or vandalism is evident, the owner will notify the Site's RP and the NYSDEC in accordance with the timeframes indicated in Section 1.3-Notifications.

6. In the event some action or inaction by the owner adversely impacts the Site, the owner must notify the Site's RP and the NYSDEC in accordance with the time frame indicated in Section 1.3 - Notifications and (ii) coordinate the performance of necessary corrective actions with the RP.

7. The owner/RP and the NYSDEC of any change in ownership of the Site property (identifying the tax map numbers in any correspondence) and provide contact information for the new owner of the Site property. 6 NYCRR Part contains notification requirements applicable to any construction or activity changes and changes in ownership. Among the notification requirements is the following: Sixty days prior written notification must be made to the NYSDEC. Notification is to be

submitted to the NYSDEC Division of Environmental Remediation's Site Control Section. Notification requirements for a change in use are detailed in Section 2.4 of the SMP. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html.

8. The owner will maintain the ground cover, berm slope and vegetative cover, the Site fence, and periodic mowing on behalf of the RP. The RP remains ultimately responsible for maintaining the engineering controls.

9. When NYSDEC deems a vapor mitigation system is necessary, the owner shall operate the system, pay for the utilities for the system's operation, and report any maintenance issues to the RP and the NYSDEC until such a time NYSDEC/NYSDOH deem the vapor mitigation system is unwarranted.

10. In accordance with the tenant notification law, within 15 days of receipt, the owner must supply a copy of any vapor intrusion data, that is produced with respect to structures and that exceeds NYSDOH or OSHA guidelines on the Site, whether produced by the NYSDEC, RP, or owner, to the tenants on the property. The owner must otherwise comply with the tenant and occupant notification provisions of Environmental Conservation Law Article 27, Title 24.

Remedial Party Responsibilities:

1) The RP must follow the SMP provisions regarding any construction and/or excavation it undertakes at the Site.

2) The RP will report to the NYSDEC all activities required for remediation, operation, maintenance, monitoring, and reporting. Such reporting includes, but is not limited to, periodic review reports and certifications, electronic data deliverables, corrective action work plans and reports, and updated SMP.

3) Before accessing the Site property to undertake a specific activity, the RP shall provide the owner advance notification that will include an explanation of the work expected to be completed. The RP will provide to (i) the owner, upon the owner's request, (ii) the NYSDEC, and (iii) other entities, if required by the SMP, a copy of any data generated during the Site visit and/or any final report produced.

4) If the NYSDEC determines that an update of the SMP is necessary, the RP will update the SMP and obtain final approval from the NYSDEC. Within 5 business days after NYSDEC approval, the RP will submit a copy of the approved SMP to the owner(s).

5) The RP will notify the NYSDEC and the owner of any changes in RP ownership and/or control and of any changes in the party/entity responsible for the operation, maintenance, and monitoring of and reporting with respect to any remedial system ECs.

The RP will provide contact information for the new party/entity. Such activity constitutes a Change of Use pursuant to 375-1.11(d) and requires 60-days prior notice to the NYSDEC. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html .

6) The RP will notify the NYSDEC of any damage to or modification of the systems as required under Section 1.3 - Notifications] of the SMP.

7) The RP is responsible for the proper maintenance of any installed vapor intrusion mitigation systems associated with the Site, as required. Maintenance and operation of the vapor intrusion mitigation systems, if and when installed will be added to the appropriate sections of the SMP and Appendix 12 (Operation , Monitoring and Maintenance Manual).

8) The RP is responsible for the proper monitoring and maintenance of any installed drinking water treatment system associated with the Site, as required in the SMP or Appendix 12 (Operation , Monitoring and Maintenance Manual).

9) Prior to a change in use that impacts the remedial system or requirements and/or responsibilities for implementing the SMP, the RP will submit to the NYSDEC for approval an amended SMP.

10) Any change in use, change in ownership, change in Site classification (*e.g*., delisting), reduction or expansion of remediation, and other significant changes related to the Site may result in a change in responsibilities and, therefore, necessitate an update to the SMP and/or updated legal documents. The RP will contact the NYSDEC to discuss the need to update such documents.

Change in RP ownership and/or control and/or Site ownership does not affect the RP's obligations with respect to the Site unless a legally binding document executed by the NYSDEC releases the RP of its obligations.

Future Site owners and RPs and their successors and assigns are required to carry out the activities set forth above.

APPENDIX 7

QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE/QUALITY CONTROL PROJECT PLAN FOR PLANNED IRM AND SUPPLEMENTAL SAMPLING ACTIVITIES

R. Freedman & Son Property
New York State Department of Environmental Conservation
Site #401033

Prepared for:

Eastern Metal Recycling LLC
143 Harding Avenue, 1st Floor
Bellmawr, New Jersey 08031

Prepared By:

Leader Professional Services, Inc.
271 Marsh Road, Suite 2
Pittsford, New York 14534

December 2020

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Figures

Tables

Appendices

1.0 INTRODUCTION

Leader Professional Services, Inc. (“Leader”) prepared this Quality Assurance and Quality Control (“QA/QC”) Project Plan to provide information pertaining to the collection, handling, analysis and documentation of standards for site activities and any follow up reporting at the R. Freedman & Son property located in Green Island, New York.

2.0 PROJECT DESCRIPTION

This QA/QC Project Plan was prepared to support soil and groundwater sampling and analysis at the R. Freedman & Sons, Tibbits Avenue, Green Island property (“Site”).

3.0 PROJECT ORGANIZATION AND RESPONSIBILITY

The management structure of this project is presented in Figure 1 “Project Management Organization.” The responsibilities of the project personnel shown in Figure 1 are described below:

NYSDEC Project Manager - Kyle Forster, Division of Remediation, located in Albany, New York, (518) 402-8644. Mr. Forster’s responsibility is to manage the project and the NYSDEC personnel who are assigned to the project for technical review and oversight, and to ensure that all aspects of the project are completed. Mr. Forster will be notified prior to deviations from the protocols presented herein and if there has been a problem with the procedures or analyses because of Site-specific conditions.

Project Director – TBD

Project Quality Assurance Officer/ Project Manager - TBD

Project Engineer -TBD

4.0 SAMPLING PLAN DESIGN AND RATIONALE

Future sampling will be specified by a project specific Work or Sampling Plan to support intrusive activities at the site, for repairs, renovations, or new construction. As a result, some of the sampling requirement may not be specified here and will require this document be amended.

In general, the environmental conceptual model for the Site’s includes a site who’s overburden is composed of new stone fill, a historic fill layer, and native silty sand and gravel soils. These attributes are detailed in the Draft Remedial Investigation Report for the site. A layer of historic fill is found across the site ranging in depth from 1 to 4-feet or more in berm areas and on the mound. The fill is composed of miscellaneous soil and debris composed of materials from the found use of the site as a railroad yard (coal, concrete, stone, etc.) and scrape yard (metal, plastic, wood, etc.). Native unsaturated soils were found to a depth of 5 to 8 feet. Groundwater was found to be flowing in than east-southeast to northeast direction toward the Hudson River.

5.0 TARGET PARAMETERS

Past environmental studies on the site identified PCBs, mercury, arsenic, chromium, copper, lead and zinc, and semivolatile organic compounds related to petroleum and wood and coal burning as being present. Depending on the media being sampled and the use of the sampling data, the targeted compounds may change.

5.1 Laboratory Parameters

Soil and groundwater samples will potentially be analyzed for Chemicals of Potential Concern ("COPC"). The COPCs include Target Compound List ("TCL"), volatile organic compounds ("VOCs"), TCL semi-volatile organic compounds ("SVOCs"), TCL pesticides/polychlorinated biphenyls ("PCBs"), and Target Analyte List ("TAL") inorganics plus cyanide and mercury.

One past groundwater sampling event also had samples analyzed for the NYSDEC's emerging contaminants: 1,4-Dioxane and Perfluorochemicals ("PFCs"), including Perfluoroalkyl and Polyfluoroalkyl Substances ("PFAS"), and Perfluorooctanoic Acid ("PFOA"). PFAS and PFOAs will be referred to collectively herein as PFCs.

A summary of the analytical parameters for each medium is provided in Table 1.

5.2 Field Parameters

Field parameters measured during groundwater sampling will include the following: conductivity, pH, temperature, dissolved oxygen, oxidation-reduction potential and turbidity. These field parameters will be measured during groundwater sampling with the use of a flow through cell.

A photoionization detector ("PID") will be used for soil sampling and soil vapor sampling to evaluate undisturbed and disturbed soil conditions and to evaluate the soil gas upon construction of the soil vapor sampling point.

6.0 DATA QUALITY OBJECTIVES

It is assumed the data quality objectives ("DQOs") are based on the use of the data for comparison to NYSDEC's Part 375 Soil Cleanup Objectives and NYSDEC's TOGS 1.1.1 Ambient Water Quality Standards and Groundwater Effluent Values. The analytical reporting limits must be consistent with these SCOs and groundwater quality criteria and are typically achieved with the analytical methods specified herein.

Sampling to determine a waste characterization will require different reporting and analytical requirements specified in USEPA's RCRA regulations and those requirements of potential waste disposal facilities and are not discussed here.

7.0 QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT DATA

Specific procedures for sampling, laboratory instrument calibration, laboratory analysis, reporting of data, internal QC, audits, preventive maintenance, and corrective action are described below.

8.0 PROCEDURES FOR THE COLLECTION OF ENVIRONMENTAL SAMPLES

The procedures in this document have been standardized to apply to the anticipated site's field conditions. It must be recognized that under certain conditions, the procedures discussed herein may not be appropriate given the site conditions at the time of the sample collection. In such cases, it will be necessary to adapt the procedures given those specific conditions of the Site and the sampling objective. Changes will be discussed with NYSDEC before sampling.

8.1 Surface Soil Sampling
The collection of surface soil samples are collected from the upper 2-inches of soil/material and can be collected as a grab or composite sample.

8.1.1 Soil Grab Samples
The sampling procedures to be used are detailed in Appendix A of this Plan and limited to the upper two inches of soil. The purpose of limiting the depth of investigation is to obtain data on the immediate environmental and health risks associated with the surface soil.

The sampler will enter the information pertinent to the sampling procedures used and observations of the environmental conditions at the time of sampling into a field logbook with an indelible ink marker. The samples will be visually inspected for staining, color and texture following the Unified Soil Classification System. The samples will be screened with a PID.

8.2 Subsurface Soil Sampling
Subsurface soil sampling procedures to be used are provided in Appendix B using a location dedicated sampling spoon or trowel from the soil taken from an excavation or direct push or spilt spoon sampling tool advanced with drilling equipment. The purpose of the subsurface soil sampling is to obtain data to further evaluate the soil quality. Depending on the sampling method, the level of soil disturbance can vary and limit health and safety risk and the generation of waste requiring disposal.

The consultant will enter information pertinent to the sampling procedures used and observations of the environmental conditions at the time of sampling into a field logbook with an indelible ink marker. The samples will be inspected to evaluate organic vapor readings, color, staining, and texture following the Unified Soil Classification System, location of stains and the location of saturated soil. The information gathered during the collection of subsurface soil samples collected using a sampling device during drilling or using a trowel during a test pit excavation will be recorded in the field notebook and on a boring log/test pit log that is provided in Appendix B.

8.3 Groundwater Sampling Procedures

Groundwater sampling will be completed as need at monitoring well locations specified in the project specific Work Plan. The sampling procedures to be used are detailed in Appendix C of this QA/QC Plan. The purpose of the groundwater sampling is to obtain a representative sample of the shallow groundwater zone.

Leader will enter the information pertinent to the sampling procedures used and observations of the environmental conditions at the time of sampling into a field logbook with an indelible ink marker.

The samples collected from permanent monitoring wells will be measured for the following field parameters during the monitoring well pre-sampling purging: water level depth below ground surface, dissolved oxygen, pH, turbidity, specific conductance, oxidation-reduction potential, temperature and the presence of a sheen or non-aqueous phase liquids. The collection of the groundwater sample will be conducted after three measurements are taken at 10-minute intervals and the measurements do not vary more than 20-percent. The field parameter data collected during purging will be recorded on the sampling form provided in Appendix C.

8.4 Field Equipment Cleaning

All non-disposable equipment used for the collection, preparation, and preservation of the environmental samples must be cleaned prior to their use. Unless the equipment and materials used are disposable, or there are a sufficient number to be used during any one sampling period, cleaning will be conducted in the field. If possible, attempts will be made to minimize field cleaning. To avoid cross contamination between sampling points, dedicated disposable sampling equipment will be used when possible.

The material needed to clean sample equipment is dependent upon the type of the equipment to be cleaned. A sampling trowel will have a different cleaning requirement than the probes used in a flow-through cell. The following is a generalized list of materials to be used during cleaning:

- Cleaning solutions: Non-phosphate detergents will be used to clean sampling re-usable equipment.
- Water: In some cases, tap water may be adequate for initial or intermediate rinses. The final rinses, however, will be with deionized/distilled water.
- Buckets and washbasins: For use in the washing and rinsing of equipment.
- A drying rack: All materials and equipment must be dried prior to additional use. Paper towels will be used when necessary for drying equipment.

The excavator bucket used for the excavation of the test pits and soil removal will be decontaminated between sample locations, work areas and at the completion of each work day. The decontamination methods used will include: use of potable water obtained from either the Green Island fire hydrant or a potable water source; high pressure spray wash using hot water from a steam generator and drying of equipment.

Soil sampling tools used for the collection of soil samples will be decontaminated by hand washing using soap and water and a stiff brush. The tools will be then rinsed with potable water and dried.

Hand tools and heavy equipment (excavator buckets) will be cleaned on the decontamination pad. Wash water generated from the cleaning process will be containerized along with any solid material.

8.5 Waste Handling

The handling of investigation-derived waste and any remediation waste generated from an intrusive activity will be handled following the procedures identified in Appendix D. All wastes will be secured in containers and roll-off boxes. Plastic sheeting placed on the ground surface will be used as temporary containment, and the area will be bermed and covered with plastic sheeting so the waste is controlled at all times, unless specified in a project specific Work Plan. Each container will be labeled to identify the waste, the location of generation (location or monitoring well number), and the date of generation. Before the end of a field session, the wastes will be sampled and analyzed for waste characterization. If the waste is determined to be hazardous, then each of those containers, boxes or piles will be appropriately labeled. All hazardous waste will be removed from the site within 90 days of its generation.

8.6 Documentation and Chain of Custody Procedures

8.6.1 Packaging and Shipping Procedures

Once a sample is collected, the sample(s) will be prepared and preserved in accordance with applicable procedures found in this OA/QC Plan and packaged for overnight shipment and/or delivery to the laboratory. Table 2 provides the container, preservation and holding time requirements for each sample media and the analysis to be conducted. Chain-of-custody procedures will be followed to ensure the proper handling and possession of the samples until the analytical laboratory has received the samples. This section outlines procedures for the packing and shipping of environmental samples and the general chain-of-custody procedures.

All individual glass and plastic sample containers will be placed in a durable shipping container. An insulated plastic cooler be used. The following is an outline of the packing and shipping procedures Leader will follow:

- The drain plug at the bottom of the cooler will be sealed to ensure that water from sample container breakage or ice melting does not leak from the container.
- Check screw caps for tightness and mark the sample volume level on the outside of large containers.
- For breakable containers, foam packing peanuts or bubble wrap may be used to keep containers in place and to prevent breakage.
- When samples must be kept at 4 degrees C, ice sealed in plastic bags or cool packs will be placed in the cooler.
- Documents accompanying the samples will be sealed in a plastic bag attached to the inside of the cooler lid.
- The lid of the cooler will be closed and fastened.
- Duct tape or reinforced shipping tape will be wrapped around the cooler several times to ensure that the lid will not open if the latch becomes unfastened.

- The following information will be attached to the outside of the cooler: name and address of receiving laboratory, return address of the sampling team, arrows indicating "This End Up" on all four sides, and a "This End Up" label on the top of the lid.
- A custody seal will be affixed and signed across the lid of the cooler.

Samples will be shipped or couriered for next day delivery at the specified laboratory.

8.6.2 Chain-of-Custody Procedures

The primary objective of the chain-of -custody procedures is to create an accurate written record which can be used to trace the possession and handling of the sample from the moment of its collection through laboratory analysis and potentially introduction as evidence.

The number of persons involved in collecting and handling samples should be kept to a minimum. Detailed field records will be kept in the project field logbook and will contain the following information:

- Sample identification and source (including sampler's name, sample location, and sample media).
- Dates and times of sample procurement, preparation, and shipping.
- Preservative used.
- Analyses required.
- Pertinent field data (pH, DO, ORP, specific conductance, temperature, etc).

To help eliminate possible problems in the chain-of-custody procedures, one staff person will be appointed Field Custodian for each task. For tasks where sampling teams are used, all samples are to be turned over to the Field Custodian by the team members who collected the samples. The Field Custodian will then document each sampling event and the sample will remain in his/her custody until it is shipped to the laboratory. The Field Custodian is responsible for properly packaging and dispatching samples to the laboratory. The responsibility includes filling out, dating and signing the appropriate portion of the chain-of-custody record.

Labels will be firmly affixed to each sample container. The labels on each sample bottle will be filled out with waterproof ink prior to sample collection. Sample reference numbers identical to that recorded on the labels will be recorded on the chain-of-custody.

When transferring the samples, the individual relinquishing the samples will sign and record the date and time on the chain-of-custody record. Every person who takes custody will fill in the appropriate section of the chain-of-custody record form, and their affiliated company. To reduce the amount of custody records, the number of custodians in the chain-of-possession will be minimized.

9.0 SAMPLE ANALYTICAL PROCEDURES

9.1 Field Analytical Procedures
Field measurements will be conducted in accordance with this document or the project specific Work Plan.

9.2 Laboratory Analytical Procedures
Chemical analyses in support of soil, groundwater, and air data will be performed by NYSDOH ELAP certified laboratory. The laboratory will maintain current SOPs for extraction, cleanup and analysis of soil and water matrices and must have on file current method detection limits ("MDL") studies to demonstrate their ability to meet the project required reporting limits within these matrices. The MDLs must be performed by the laboratory on a yearly basis to ensure their ongoing ability to perform the methods, as specified. The MDLs will be performed in accordance with USEPA guidance described in 40 CFR 136, 1986, Appendix B, "Definition and Procure for the Determination of the Method Detection Limit -Revision 1.11."

9.2.1 SOIL AND GROUNDWATER METHODS
Using the methods summarized in Table 1, the laboratory will perform analysis of soil, air and groundwater.

9.3 Sample Documentation in The Laboratory
Upon receipt at the laboratory, the designated sample custodian will inspect the shipping cooler/container and the custody seal. The sample custodian will note the condition of the cooler/container and the custody seal on the Chain-of-Custody record sheet.

The sample custodian will record the temperature of one sample (or temperature blank) from each cooler and the temperature will be noted on the Chain-of-Custody. If the shipping cooler seal is intact, the sample containers will be accepted for analyses. The sample custodian will document the date and time of receipt of the containers and sign the form.

If damage or discrepancies are noticed (including sample temperature exceedances), they will be recorded in the remarks column of the record sheet, dated and signed. Any damage or discrepancies will be reported to the lab supervisor who will inform the lab manager and QA Officer before samples are processed.

10.0 INSTRUMENT CALIBRATION
Both field instrumentation and laboratory analytical instrumentation are to be used to provide project data. Both systems will require regular calibration in order to provide comparable and accurate information.

On-Site VOCs field data will be obtained using a portable organic vapor analyzer monitoring instrument, which will require daily calibration checks and weekly calibration. Other instruments requiring calibration include: the water quality meter used for DO, ORP, field conductivity, turbidity meters, pH and temperature. Since this instrument will be obtained directly from a field equipment rental vendor, who will also be responsible for calibration of the instrument prior to the consult receiving the equipment. The consultant will also have the manufacturer's calibration instructions if field calibration is required.

10.1 Field Instruments

10.1.1 Portable Organic Vapor Analyzer Calibration

The PID equipment has a calibrated range of 0 to 2000 parts per million volume ("ppmv") total hydrocarbons and can collect instantaneous and 15-minute average concentrations. It is typically calibrated using isobutylene. A 10.2-eV lamp will be used, which ionizes many of the common air contaminants. The PID is highly sensitive to aromatic compounds such as benzene or toluene.

Calibration will be performed prior to taking the instrument into the field. Certified isobutylene-in-air (100 ppm) and zero-air standard gases are used for calibration, according to the manufacturer's specifications. Calibration checks will be made daily (at a minimum) using the isobutylene calibration gas. If needed, the instrument will be re-calibrated when the calibration check falls below 10-percent of the isobutylene concentration of the calibration gas. Field calibration records will be kept in the project field logbook

10.1.2 Conductivity, pH Meter, Do, Turbidity, Temperature Calibration

Tools and equipment which do not contain Telfon and other materials that may contribute PFOAs to the sample. Perfluoroalkyl and Polyfluoroalkyl ("PFOAs") substances will be used to sample. Similarly, field technicians will not wear clothing containing GORE-TEX or clothing that has been waterproofed with PFOAs containing substances. Eco Rental (Leader field equipment provider) will provide documentation that their tools and supplies do not contain PFOAs.

The Horiba 22 or similar device Water Quality Monitor is a multi-probe instrument that can measure most of the required field parameters using one hand-held instrument. The instrument will be provided directly from a field equipment rental vendor, who will also be responsible for calibration of the instrument prior to the consult receiving the equipment. The calibration of the specific conductance, pH, dissolved oxygen ("DO") and temperature will be checked prior to beginning work and again at the completion of sampling following the manufacturer's operating procedures, or if results do not make sense based on prior testing. Field calibration records will be kept in the project field logbook

The consultant will measure turbidity using a standalone device such as the Lamotte 2020WE Turbidity meter or a multifunction unit which can measure multiple parameters. This device uses an optical sensor and utilizes manufacturer provided glassware to use a measurement container. The meter kit also contains a calibration liquid for field calibration. Calibration of the meter will be completed at the beginning and at the completion of the work day. Field calibration records will be kept by the Leader's geologist in a project field logbook.

10.2 Laboratory Equipment Calibration

All instruments used to perform chemical measurements must be properly calibrated prior and during use to ensure acceptable and valid results. The accuracy and traceability of all calibration standards used must be properly documented.

The methodologies selected for use in this investigation specify the types and frequency of calibrations. The specific methods to be used are provided in Table 1.

Accessory analytical equipment such as refrigerators, balances and ovens required for the storage and preparation of samples must be calibrated and/ or monitored with the following guidelines:

Equipment must be checked daily and these records kept in a logbook or calibration-specific log.

The laboratory must document clearly the acceptance criteria for all such equipment (e.g., refrigerator temperature must be 4°C ± 2°C) and corrective actions must be taken for any out-of-control situation as described in the laboratory's Quality Manual.

The equipment must not be used after corrective action until it has been recalibrated or verified through the successful analysis of a check standard.

Calibrations of other miscellaneous analytical equipment (e.g., automatic pipettes) must be performed according to manufacturer's recommendations.

Implementation of the laboratory calibrations will be the responsibility of the Laboratory Manager and the analysts performing the procedures.

The procedures described in this QA/QC Plan are to be used in conjunction with specific instrument manufacturer's instructions, applicable analytical methodology requirements, and specific laboratory field procedures for instrument operation.

10.2.1 *Laboratory Instrument Preventative Maintenance*

As part of the laboratory QA/QC program, a routine preventative maintenance program is conducted by the laboratory to minimize the occurrence of instrument failure and other system malfunctions. Designated laboratory employees regularly perform routine scheduled maintenance and repair of (or coordinate with the vendor for the repair of) all instruments. All laboratory instruments are maintained in accordance with manufacturer's specifications. The preventive maintenance program should include:

An inventory of replacement and spare parts for instruments that are maintained.

Maintenance logbooks for each instrument with information on routine and non-routine procedures. The logbook records must include the instrument number, description of malfunction or problem, date of maintenance activity, the type of activity performed and final resolution.

Training of laboratory staff in the maintenance requirements of the instruments. Preventive maintenance schedules and activities will be outlined in the laboratory SOPs.

10.2.2 Inductively Coupled Plasma Spectroscopy

The Inductively Coupled Plasma (ICP) Spectrometer is maintained under service contract with the manufacturer. Typical routine preventive maintenance includes:

- Checking pump tubing and replacing when necessary
- Checking nebulizer for even "spray" and cleaning, as necessary
- Checking the torch for plasma height and shape and cleaning, as necessary
- Checking sensitivity of photomultiplier and replacing, as necessary

10.2.3 Gas Chromatograph Instruments

The Gas Chromatographyy ("GC") and GC/Mass Spectometry ("MS") systems will be maintained on a service contract or undergo in-house maintenance to provide routine preventive maintenance. Spare parts for the GC and GC/MS systems should include: filaments, electron multiplier, source parts, o-rings, ferrules, septa, injection port liners, and columns. Routine preventive maintenance for the systems should include:

- Checking the data systems (disk drives, hard drives etc.) and servicing, as necessary.
- Changing oil and traps on mechanical and turbo pumps.
- Conditioning of moisture traps, every two months or when the gas source is changed.
- Carrier gas evaluation and leak checking of electron capture detector when the gas or column is changed.
- Servicing the MS source through cleaning, replacement of filaments and other source parts, as necessary.
- Replacement of injection port septa and liners, as necessary.
- Clipping the front end of GC column or replacement of GC column, as necessary.

10.3.4 Atomic Absorption Instruments

The atomic absorption (AA) systems will be maintained on a service contract or undergo in-house maintenance to provide routine preventive maintenance. Routine preventive maintenance procedures should include:

- Checking the plumbing connections.
- Checking the auto-sampler and tubing.

10.3.4 Thermometers

Thermometers for refrigerators and ovens are calibrated yearly against National Institute of Standards and Technology (NIST) certified thermometers. The Laboratory QA Officer will be responsible for the safekeeping of the NIST thermometers and for the documentation asserting the accuracy of their measurements.

10.3.5 Analytical Balances

Virtually every analytical procedure requires the use of side-loading and/or top-loading balances. Many of these requirements involve standards preparation and are, therefore, crucial to accurate determination. Balances should be maintained on a service contract. A calibration status label is affixed to each balance after calibration during servicing.

11.0 INTERNAL QUALITY CONTROL CHECKS

11.1 Field Measurements

The type and frequency of field-generated QC samples are summarized in Table 3, but the sample numbers presented may change based on the project specific Work Plan. Primarily, rinse blanks, trip blanks, and field duplicates are employed to verify the field sampling approach.

11.2 Laboratory Analysis

The type and frequency of laboratory generated QC samples are specified by the analytical method and the laboratory's quality assurance plan. Criteria that the laboratory must meet are presented in the analytical methods.

11.2.1 Laboratory Quality Control

Specific procedures related to internal laboratory QC samples are detailed in the analytical methods. The following QC samples will be analyzed, and the results will be used to assess overall analytical accuracy and precision.

11.2.2 Reagent (Method) Blanks

Laboratory glassware and sample containers used to store and transport samples will be cleaned in accordance with method protocols.

A reagent blank will be analyzed by the laboratory at a frequency of one blank per analytical batch. The reagent blank, an aliquot of analyte-free water or sand, will be carried through the entire sample preparation and analytical procedure, including all cleanup procedures. The reagent blank is used to document contamination resulting from the analytical process.

11.2.3 Laboratory Control Samples (LCS)/ Blank Spike Analyses

The LCS or blank spike serves as a monitor of the overall performance of all steps in the analysis, including the sample preparation. LCS or blank spikes will be analyzed for each method using the same sample preparation and analytical procedures employed for the investigative samples.

11.2.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

An MS/MSD sample will be analyzed for organic parameters and inorganic parameters at a minimum frequency of one per 20 investigative samples. For each matrix, percent recoveries will be used to evaluate analytical accuracy while the RPD between MS/MSD analyses will be used to assess analytical precision.

11.2.5 Surrogate Analysis

Surrogates are organic compounds which are similar to the analytes of interest but are not normally found in environmental samples. Surrogates are added to samples to monitor the effect of the matrix on the accuracy of the analysis. Every blank, standard, and environmental sample analyzed by GC or GC/MS, including MS/MSD samples, will be spiked with surrogate compounds prior to sample preparation.

The compounds that will be used as surrogates and the levels of recommended spiking are specified in the methods. Surrogate spike recoveries must fall within the laboratory control limits. If surrogate recoveries are excessively low (<10 percent), the laboratory will contact the QA/QC Officer for further instructions.

Dilution of samples to bring the analyte concentration into the linear range of calibration may dilute the surrogates out of the quantification limit. Reanalysis of these samples is not required. Assessment of analytical quality in these cases will be based on the MS/MSD sample analysis results.

11.2.6 Retention Time Window Determination

For organic analyses, determination of the target analyte retention time window will be made based on the procedure specified in the methods of analysis. Positive identification of an analyte will be made when its retention time falls within the window established during calibration.

11.2.7 Internal Standards

To ensure that changes in GC/MS response and sensitivity do not affect sample analysis results, internal standard compounds are added to all samples, blanks, and spike samples prior to VOC and SVOC analyses. All results are calculated as a ratio of the internal standard response. The criteria by which the internal standard results are assessed will be as follows:

- Internal standard area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated calibration standard.
- The retention time of the internal standard must not vary more than ±30 seconds from the associated calibration standard.

11.2.8 Cleanup Check Samples

Whenever a cleanup technique is employed to eliminate interferences that may prevent accurate determination of the targets of interest at the project required reporting limits, the cleanup procedure must be verified through the analysis of check standards. A standard containing some or all of the target analytes must be processed through the cleanup procedure and analyzed. The recovery of the target analytes in this check will indicate if the cleanup procedure was effective in elimination of interferences without impacting the target compounds of interest.

11.2.9 Sample Collection QC

Field QA/QC sample quantities are summarized in Table 3 and the use in the analysis of the data is discussed in Table 4. Field duplicates will be submitted at a frequency of one per 20 investigative samples or one per sampling event. The duplicate results will be used to assess overall sampling and analytical precision and will be assessed against acceptance criteria of 50 percent RPD for water samples and 100 percent for soil samples.

Trip blanks for VOCs will be prepared by the laboratory using analyte-free water and submitted with the water sample collection containers. The trip blanks will be kept unopened in the field with sample bottles. One trip blank will be transported to the laboratory with each batch of aqueous VOC samples. The laboratory will analyze trip blanks as samples.

Rinse blanks will be used to assess decontamination procedures of collection equipment used for multiple samples. The rinse blank will be prepared using analyte-free deionized water when non-dedicated equipment is used in the field. The rinse blanks will be analyzed by the laboratory as samples. Rinse blanks will be prepared at a frequency of one per 20 investigative samples per equipment type.

12.0 DATA REDUCTION, VALIDATION, AND REPORTING

All data generated through field activities or by the laboratory operation shall be reduced and validated prior to reporting in accordance with the methods and the following procedures.

12.1 Data Reduction

12.1.1 Field Data Reduction Procedures

Field data reduction procedures will be minimal in scope compared to those implemented in the laboratory setting. Only direct read instrumentation will be employed in the field. The pH, conductivity, temperature, dissolved oxygen, and turbidity readings collected in the field will be generated from direct read instruments following calibration per manufacturer's recommendations. Such data will be written into field logbooks immediately after measurements are taken and/ or recorded on field forms. If errors are made, results will be legibly crossed out, initialed, and dated by the field member, and corrected in a space adjacent to the original entry. Later, when the results forms required for this study are being filled out, the Field QA Officer will proof the forms to determine whether any transcription errors have been made by the field crew.

12.1.2 Laboratory Data Reduction Procedures

For this project, the equations that will be employed in reducing data are found in the appropriate chapters of SW-846, Third Edition. All calculations are checked at the conclusion of each operating day. Errors are noted, corrections are made, but the original notations are crossed out legibly. Analytical results for soil samples shall be calculated and reported on a dry weight basis.

Quality control data (e.g., laboratory duplicates, surrogates, matrix spikes, and matrix spike duplicates) will be compared to the method acceptance criteria. Data considered to be acceptable will be entered into the laboratory computer system. Data summaries will be sent to the Laboratory QA Officer for review. If approved, data are logged into the project database format. Unacceptable data shall be appropriately qualified in the project report. Case narratives will be prepared which will include information concerning data that fell outside acceptance limits, and any other anomalous conditions encountered during sample analysis.

12.2 Data Validation

Data validation will be conducted in accordance with "U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," EPA-540/R-99/008, October 1999, and the "U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," EPA-540/R-94-013, February 1994. The data assessment will include a review of all technical holding times, instrument performance check sample results, initial and continuing calibration results, and all batch and matrix QC including rinse blanks, field duplicates, MS/MSD, matrix duplicates, surrogate recoveries, method blanks, LCS results, continuing and initial calibration checks, and the identification and quantitation of specific analytes of interest. Assessment of analytical and in-house data will include checks on data consistency by looking for comparability of duplicate analyses, adherence to accuracy and precision control criteria detailed in this QAPP, and anomalously high or low parameter values. The results of these data validations will be reported to Leader's project manager and the laboratory, noting any discrepancies and their effect upon acceptability of the data.

The data validation reports will summarize the samples reviewed, parameters reviewed, any nonconformance with the established criteria, validation actions (including data qualifiers). Data qualifiers will be consistent with the validation guidelines and will consist of the following:

J: The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ: The analyte was not detected above the sample reporting limit; however, the reporting limit is approximate.

U: The sample was analyzed for, but was not detected above the sample reporting limit.

R: The sample result is rejected due to serious deficiencies. The presence or absence of the analyte cannot be verified.

12.3 Laboratory Data Reporting

The Laboratory will provide electronic copies of all laboratory data reports for project reporting purposes in a format consistent with NYSDEC/USEPA Contract Laboratory Program ("CLP") Category B deliverables. Equis electronic deliverables will also be required for the project database.

12.4 Data Reconciliation with Requirements for Usability

The goal of this project is to produce data to be used in comparison to soil and groundwater quality cleanup criteria. As such, the data generated must meet the data user's needs as defined in the project DQOs in Section 6.0 of this QA/QC Plan. In summary, the primary objectives for assessing the usability of the data are:

1) To collect data that is representative of site conditions and comparable with prior data;

2) To produce data that meets the project reporting limit requirements; and

3) To produce data of the highest quality possible in order to accurately and precisely characterize the site.

Data validation personnel will apply the standard data validation qualifiers to data to indicate the level of uncertainty in the associated result. In general, for the purposes of this investigation, data that are left unqualified, data qualified "U" (non-detected), data qualified "J" (detected as an estimated result), and data qualified "UJ" (non-detected at an estimated reporting limit) are considered valid and usable for project objectives. Data that are qualified "R" (rejected) will be considered invalid and unusable.

The goal of this program is to generate valid, usable data. However, in environmental sampling and analysis, some data may be lost due to sampling location logistics, field or laboratory errors, or matrix effects that may cause the rejection of results for some compounds. The overall completeness goal for collection of valid data is 90 percent. If this goal is not met, data gaps may exist that may compromise the intended use of the data.

13.0 PERFORMANCE AND SYSTEM AUDITS

Performance and system audits of both field and laboratory activities may be conducted in accordance with the Work Plan and this QA/QC Plan, to verify that sampling and analysis are performed in accordance with the procedures established.

Performance and system audits of both field and laboratory activities will be conducted to verify that sampling and analysis are performed in accordance with the procedures established in the QA/QC Plan and analytical methods. The audits of field and laboratory activities will include two independent parts: internal and external audits.

13.1 Field Performance and System Audits

13.1.1 Internal Field Audit Responsibilities

Internal audits of field activities include the review of sampling and field measurements conducted by the Field QA Officer. The audits will verify that all procedures are being followed. Internal field audits will be conducted once during each phase of the sampling and at the conclusion of the project. The audits will include examination of the following:

1) Field sampling records, screening results, instrument operating records
2) Sample collection
3) Handling and packaging in compliance with procedures
4) Maintenance of QA procedures
5) Chain-of-custody reports

Follow up audits will be conducted to correct deficiencies and to verify that procedures are maintained throughout the investigation.

13.1.2 External Field Audit Responsibilities

External audits may be conducted by the NYSDEC or designee at any time during the field operations. These audits may or may not be announced and are at the discretion of the NYSDEC.

13.2 Laboratory Performance and System Audits

13.2.1 Internal Laboratory Audit Responsibilities

For the purpose of internal evaluation, performance evaluation check samples are analyzed periodically by the laboratory. Internally, the evaluation of data from these samples is done on a continuing basis over the duration of a given project.

The project QA Officer may carry out performance and/ or systems audits to ensure that data of known and defensible quality are consistently produced during this program.

Systems audits are qualitative evaluations of all components of laboratory quality control measurement systems. They determine if the measurement systems are being used appropriately. The audits may be carried out before all systems are operational, during the program, or after completion of the analytical report by the laboratory. Such audits typically involve a comparison of the activities given in the QA/QC Plan described herein, with activities actually scheduled or performed. A special type of systems audit is the data management audit. This audit addresses only data collection and management activities and can be used to track data generation and manipulation through the lab.

The performance audit is a quantitative evaluation of the measurement systems used for a monitoring program. It requires testing the measurement systems with samples of known composition or behavior to quantitatively evaluate precision and accuracy. A performance audit may be carried out by or under the auspices of the project QA Officer without the knowledge of the analyst during this program.

It should be noted, however, that any additional QA audits would only be performed if deemed necessary.

13.2.2 External Laboratory Audit Responsibilities

External audits will be conducted as required, by appropriate NYSDOH QA personnel.

13.3 Specific Routine Procedures to Assess Data Precision, Accuracy, Representativeness, and Completeness ("PARC")

The laboratory and the project QA/QC officer will evaluate data precision, accuracy, and completeness.

The purpose of this Section is to define the goals for the level of QA effort; namely, accuracy; precision and sensitivity of analyses; and completeness, representativeness, and comparability of measurement data from the analytical laboratories. QA objectives for field measurements are also discussed.

DQOs have been established to ensure that the database developed during the monitoring activities meet the objectives and quality necessary for its intended use.

13.3.1 Precision

Precision is a measure of degree to which two or more measurements are in agreement.

$$\textit{Precision} = (D_2 - D_1) / (D_1 + D_2)/2 \times 100$$

D_1 = original result

D_2 = duplicate result

13.3.1.1 Precision Objectives

The method(s) precision (reproducibility between duplicate analyses) will be determined based on the duplicate analysis of matrix spike samples for organic parameters and duplicate sample analyses for inorganic parameters. Precision will be reported as Relative Percent Difference (RPD) between duplicate analyses. Sampling precision will be addressed through the collection and measurement of field duplicates at a rate of one per 20 investigative samples or one per sampling event, whichever is greater. Precision will be evaluated using the laboratory control limits.

13.3.2 Accuracy

Accuracy is the degree of agreement between an observed or measured value and an accepted reference or true value.

$$\textit{Accuracy} = [(A-B)/C] \times 100$$

A = The analyte determined experimentally from the spike sample.

B = The background level determined by a separate analysis of the unspiked sample.

C = The amount of spike added.

13.3.2.1 Accuracy Objectives

Accuracy will be determined for both field and laboratory activities through the use of field blanks and matrix spike samples.

Field (rinsate) blank samples will be collected and analyzed as a check on the efficiency of the sampling device cleansing protocols and to determine if the field, sample transporting procedures, preservatives, and environments have contaminated the sample. Rinse blanks will be collected at a frequency of one per 20 samples per equipment type.

The method accuracy (percent recovery) for water and soil samples will be determined by spiking selected samples (matrix spikes) with all representative spiking compounds, as specified in the analytical methods. Accuracy will be reported as the percent recovery of the spiking compound(s) and will be evaluated using the laboratory control limits.

13.3.3 Completeness

Completeness is a measure of the amount of valid (usable) data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions.

Completeness = (Number of useable data/Number of useable data planned) X 100

13.3.3.1 Completeness Objective

Completeness is a measure of the amount of valid measurements obtained from all the measurements taken in the project. Laboratory completeness for this project will be 90 percent or greater.

13.3.4 Representativeness

Representativeness expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition or an environmental condition within a defined spatial and/or temporal boundary.

13.3.4.1 Representativeness Objective

Sampling protocols have been presented for the collection of a variety of samples exhibiting specific characteristics or conditions (i.e., the presence of stains or elevated PID readings or when field parameters collected during groundwater sampling stabilize). These conditions may not be representative of the site conditions, but possibly the worst case so the data might reflect what could potentially be on the site and drive risk assessment and eventual cleanup. In these cases, the term representativeness has a very small characteristic population and very small spatial area. Generically, representativeness may suggest a meaning of “typical” or “average” when in fact the sample was biased toward the worst case extreme.

13.3.5 Corrective Actions

Corrective action is the process of identifying and correcting unacceptable procedures or QC performance that can affect data quality and usability. Corrective actions, if necessary, will be implemented in accordance with the procedures presented below and the laboratory SOPs.

Corrective actions may be required for two classes of problems: analytical and equipment problems, and noncompliance problems. Analytical and equipment problems may occur during sampling and sample handling, sample preparation, and laboratory instrumental analysis.

For non-compliance problems, for example, USEPA methods or QC measures are not being followed, a formal corrective action will be implemented at the time the problem is identified. The person who identifies the problem is responsible for notifying the Project Manager. A description of the problem and the corrective action implemented will be confirmed in writing via e-mail, facsimile, or technical memorandum.

Any nonconformance with the established QC procedures in this QAPP will be identified and corrected.

14.0 FIELD NOTES

Field notes will be maintained by the consultant's staff during all field activities. The overall chronology of field activities as well as sampling details will be recorded in a bound logbook with an indelible ink marker. Each page will be consecutively numbered and signed by Project Manager/Site Manager at the end of the workday. The following information, as appropriate, will be documented in the field notes:

- Date
- Weather conditions
- Personnel on or visiting Site
- Subcontractors on-Site
- Worked performed
- Changes to planned work as discussed with NYSDEC
- Time at which work, sampling or analysis was performed
- Equipment calibration methods and time
- Problems with personnel or machinery
- Sample identification numbers
- Sampling sequence
- Types of sample containers used
- Parameters requested
- Field analysis methods and data
- Field observations during the sampling event
- Name of sampler

TABLE 1
SAMPLE ANALYSIS AND QA/QC REQUIREMENTS

Sample Types	Headspace Samples, PID	TCL VOCS +20 TICs, SW-846 8260B	TCL SVOCS +20 TICs, SW-846 8270	1,4-Dioxane SW-846 8270-SIM	PFOAs SW-846 Mod. Method 537	TCL Pesticides and Herbicides, SW-846 8081B	TAL Metals + Mercury and Cyanide SW-846 6010, 6020, 7471, 9012	PCBs, SW-846 8081
Soil	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Imported Fill	TDB	TDB	TDB	TDB	TDB	TDB	TDB	TDB
Groundwater								
Monitoring well	0	3	3	3	0	0	3	3
Total Number of Samples, not including QA/QC samples	0	3	3	3	0	0	3	3

TABLE 2
Sample Analytical Procedures and Sample Preservation Requirements

Sample Type	Analysis	Type and Size Container	# of Containers per Sample	Preservation	Holding Time
Soil	TCL Volatiles	Glass, 2-ounce jar with Teflon lined cap	2	Cool to 4-deg. C	10 days
	TCL Semivolatile Organics	Glass, 4-ounce jar with Teflon lined cap	1	Cool to 4-deg. C	10 days
	TCL Pesticides	Glass, 4-ounce jar with Teflon lined cap	1	Cool to 4-deg. C	10 days
	TAL Metals + Cyanide	Glass, 4-ounce jar with Teflon lined cap	1	Cool to 4-deg. C	180 days, Mercury 26 days
	Cyanide	Glass, 4-ounce jar with Teflon line cap	1	Cool to 4-deg. C	12 Days
Groundwater	TCL Volatiles	40-ml vial with Teflon septum	3	ph<2 adjusted with HCL Acid, Cool to 4 deg. C	10 days
	TCL Semivolatile Organics	Glass, 1-Liter amber bottle with Teflon lined cap	1	Cool to 4 deg. C	5 days
	TCL Pesticides	Glass, 1-Liter amber bottle with Teflon lined cap	1	Cool to 4 deg. C	5 days
	TAL Metals	Plastic, 1-Liter bottle with Teflon lined cap	1	pH<2 adjusted with Nitric Acid, Cool to 4	180 days, Mercury 26 Days
	Cyanide	Plastic, 500-ml with Teflon lined cap	1	pH >12 NaOH	12 days
	PFOAs	High Density Polyethylene 250 ml	1	Cool to 4-deg. C	14-days from extraction
	1,4-Dioxane	Amber glass 500 ml	2	Cool to 4-deg. C	7-days from extraction
Soil Vapor	TO-15 VOCs	1 Liter Summa canisters	1	None	30 days from day of collection

TABLE 3
Quality Assurance Sample Schedule

	Trip Blank[1]	**Equipment Rinse Samples**[2]	**Duplicate Samples**[2]	**Matrix Spike**[2]	**Matrix Spike Duplicates**[2]
Soil Samples	1 per sample shipment	1 per sampling tool	1:20 samples	1:20 samples	1:20 samples
Groundwater Samples	1 per sample shipment	1 per sampling tool	1:20 samples	1:20 samples	1:20 samples

N/A = not applicable

Notes:
1. VOCs only
2. All analyzed parameters

TABLE 4
Schedule of Quality Assurance Samples and Uses

	Soil	Groundwater	Use
Trip Blank	√	√	Submitted with each sample shipment and analyzed for volatile organic compounds to determine if cross contamination has occurred between the samples and the laboratory equipment.
Matrix Spike and Matrix Spike Duplicate	√	√	Two samples submitted once per 20 samples for each matrix and analyzed for the same analytical parameters as the typical environmental sample. Is used to determine accuracy of analytical equipment and evaluate sample matrix interference problems.
Duplicates	√	√	One sample is submitted for 10 samples analyzed and analyzed for the same analytical parameters as the typical environmental sample. Is used to determine homogeneity of the sample and accuracy of analytical method and equipment.
Equipment Rinse Blank Samples	√	√	One sample is submitted for every sample tool used. Sample is analyzed for the same analytical parameters as the typical environmental sample. Is used to determine if decontamination procedures are impacting the sample or if procedures are cleaning the equipment.

APPENDIX A
SURFACE SOIL SAMPLING

Surface Soil Sampling Procedures

The collection of surface soil samples will be required to fulfill a variety of objectives including physical description, field screening, and laboratory chemical analysis. The task specific work plan specifies the data objective, location, depth, and analytical parameters for the soil sample program. The purpose of this field operation procedure is to describe the methods to be used during each of these activities.

This procedure will be used for the collection of surface soil samples. Surface soil samples will be collected using a direct push ("DP") sampling tool or a sample trowel to collect a sample. All surface soil samples will be collected from the upper 2-inches of overburden. In the event vegetation is growing in the sampling area, either a bare spot close to the original location will be selected for sampling or the vegetation will be removed and only the overburden material sampled. The data to be obtained will be used to assess the environmental quality of the ground surface and any impacts that may result from the contaminants that are present.

Field Screening for Volatile Organics

Soil samples collected for field screening will undergo the following handling procedures:

- The sample sleeve will be removed from the DP sampling tool or split spoon sampler will be opened and the soil screened with the PID.
- The observed organic vapor concentration will be recorded for future reference.
- The sample will be visually inspected for soil classification, moisture content, and the presence of debris, stains or waste like materials (sludge, non-aqueous phase liquids).
- The representative portions of the sample will be placed in a glass jars with screw on lids for chemical analysis following the parameter list for surface soil samples.

Physical Description

For each sample interval will be visually examined and described in accordance with the Unified Soil Classification System. This information, together with a record of the length of the recovered portion of the interval, will be entered into the field logbook. Information to be included follows:

- Date;
- Boring Location Number;
- Sample Number;
- Depth Interval;
- Orientation; and
- Job Number.

Soil Samples for Laboratory Analysis

The Project's Work Plan and, or Quality Assurance Plan specifies the sample containers to be used and the parameters to be analyzed. Samples to be analyzed shall be placed in the containers as quickly as possible. Furthermore, all samples for laboratory analysis shall be preserved and transported in accordance with the following procedures. All samples to be sent to the laboratory for chemical analysis must be maintained in a condition that is as close as possible to in situ conditions. The first consideration is the proper selection of containers, preservation, and associated holding times. Other considerations include proper field notes, proper chain-of-custody procedures, and proper labeling of the samples.

Containers

The Quality Assurance Plan specifies the containers to be used.

Preservation

The general purpose of preservation is to maintain the original characteristics (and thus validity) of the sample during the time required for shipping of the sample to the laboratory. For soil, the only preservation technique is cooling the sample to approximately 4°C. This will be done in the field using ice or cold packs in coolers. Samples which are visually (highly) contaminated will be kept in individual sample coolers prior to and during transportation to the laboratory.

Sample Custody Procedures

The goal of implementing chain-of-custody procedures is to ensure that the sample is traceable from the time it is collected until it, or its derived data, are used. Samples would be considered in "custody" under the following conditions:

1. It is in personal possession.
2. It is in personal view after being in personal possession.
3. It was in personal possession when it was property secured.
4. It is in a designated secure area.

When transferring and/or shipping from the field, samples will be accompanied by the chain-of-custody record. The form includes the signatures of the relinquishers and the receiver as well as the date and time of the exchange, and any pertinent remarks. Since all samples will be immediately placed in coolers, shipment will also be made using these coolers. The samplers will complete the appropriate portion of the chain-of-custody form and deliver the cooler to the laboratory or to the shipping company. The receiving party will complete the remainder of the form and a copy will be retained by the sampler and kept with the field data sheets for that round of sampling. Each cooler will also be sealed using chain-of-custody tape.

Labels

The sample to be sent to the laboratory for chemical analysis will be identified with the following information:

- Date and time of collection;
- Location number;
- Sample number; and
- Sampler's name and affiliation.

Equipment Cleaning Methods

Equipment in actual contact with a laboratory sample will be cleaned prior to and between each use. The equipment will then be temporarily placed on clean racks, off the ground until it is used. Equipment such as DP samplers, sample trowels and soil knives will be cleaned with the following materials:

- Trisodium phosphate dissolved in clean water;
- Clean water rinse;
- Pesticide Grade Methanol rinse;
- Distilled/deionized water rinse; and
- Air dry.

APPENDIX B
SUBSURFACE SOIL SAMPLING

Soil Sampling Procedures

The collection of samples will be required to fulfill a variety of objectives including physical description, field screening, and laboratory chemical analysis. The task specific work plan specifies the data objective, location, depth, and analytical parameters for the soil sample program. The purpose of this field operation procedure is to describe the methods to be used during each of these activities.

This procedure will be used for the collection of subsurface samples. Soil samples will be collected using either a 4-foot-long by 2-inch-diameter direct push (“DP”) sampling tool, a 2 to 3-inch diameter split spoon sampler, or grab samples from the sidewall of an excavation. A Geoprobe sampling rig will be used to advance DP tooling and a truck mounted drilling rig, using hollow stem augers, will be used to advance the split spoon sampler. The DP sampling tool will collect the samples within a clear acrylic sleeve. Grab samples will be taken directly from the undisturbed soil using a clean trowel or from disturbed soil from the backhoe bucket. Samples taken from the backhoe bucket will only collect samples which are less likely to have been impacted by the bucket. Taking the sample from undisturbed soil clumps. The selection of material for sampling will follow the procedures identified below.

Field Screening for Volatile Organics

Soil samples collected for field screening will undergo the following handling procedures:

- The sample sleeve will be removed from the DP sampling tool or split spoon sampler will be opened and the soil screened with the PID.
- The observed organic vapor concentration will be recorded for future reference.
- The sample will be visually inspected for soil classification, moisture content, and the presence of debris, stains or waste like materials (sludge, non-aqueous phase liquids).
- The representative portions of the sample will be placed in a glass jars with screw on lids.

Physical Description

For each sample interval will be visually examined and described in accordance with the Unified Soil Classification System. This information, together with a record of the length of the recovered portion of the interval, will be entered into the field logbook. Information to be included follows:

- Date;
- Boring Location Number;
- Sample Number;
- Depth Interval;
- Orientation; and
- Job Number.

Soil Samples for Laboratory Analysis

The Project's Work Plan and, or Quality Assurance Plan specifies the sample containers to be used and the parameters to be analyzed. Samples to be analyzed shall be placed in the containers as quickly as possible. Furthermore, all samples for laboratory analysis shall be preserved and transported in accordance with the following procedures. All samples to be sent to the laboratory for chemical analysis must be maintained in a condition that is as close as possible to in situ conditions. The first consideration is the proper selection of containers, preservation, and associated holding times. Other considerations include proper field notes, proper chain-of-custody procedures, and proper labeling of the samples.

Containers

The Quality Assurance Plan specifies the containers to be used.

Preservation

The general purpose of preservation is to maintain the original characteristics (and thus validity) of the sample during the time required for shipping of the sample to the laboratory. For soil, the only preservation technique is cooling the sample to approximately 4°C. This will be done in the field using ice or cold packs in coolers. Samples which are visually (highly) contaminated will be kept in individual sample coolers prior to and during transportation to the laboratory.

Sample Custody Procedures

The goal of implementing chain-of-custody procedures is to ensure that the sample is traceable from the time it is collected until it, or its derived data, are used. Samples would be considered in "custody" under the following conditions:

1. It is in personal possession.
2. It is in personal view after being in personal possession.
3. It was in personal possession when it was property secured.
4. It is in a designated secure area.

When transferring and/or shipping from the field, samples will be accompanied by the chain-of-custody record. The form includes the signatures of the relinquishers and the receiver as well as the date and time of the exchange, and any pertinent remarks. Since all samples will be immediately placed in coolers, shipment will also be made using these coolers. The samplers will complete the appropriate portion of the chain-of-custody form and deliver the cooler to the laboratory or to the shipping company. The receiving party will complete the remainder of the form and a copy will be retained by the sampler and kept with the field data sheets for that round of sampling. Each cooler will also be sealed using chain-of-custody tape.

Labels

The sample to be sent to the laboratory for chemical analysis will be identified with the following information:

- Date and time of collection;
- Boring number;
- Sample number; and
- Sampler's name and affiliation.

Equipment Cleaning Methods

Equipment in actual contact with a laboratory sample will be cleaned prior to and between each use. The equipment will then be temporarily placed on clean racks, off the ground until it is used. Equipment such as DP samplers, split spoon samplers and soil knives will be cleaned with the following materials:

- Trisodium phosphate dissolved in clean water;
- Clean water rinse;
- Pesticide Grade Methanol rinse;
- Distilled/deionized water rinse; and
- Air dry.

Non-dedicated drilling equipment, backhoe buckets, and sampling equipment in contact with soil or waste materials will be cleaned prior to use and between each boring location. Decontamination of this equipment will be accomplished using a brush and trisodium phosphate dissolved in clean water to remove large solid particles, followed by steam cleaning with clean water. The equipment will be placed on top of open bins, drums, or "luggers" which will collect all wash water. When full, the contents will be pumped into closed drums and left on the Site for a disposal contractor. The drilling rig will be steam-cleaned prior to site entry and prior to leaving the site.

APPENDIX C
GROUNDWATER SAMPLING

Procedures for Groundwater Quality Sampling

The purpose of this document is to explain the procedures that will be followed during all groundwater sampling activities at the Site.

The water quality sampling will take place over a period of one to several days. The first day will consist of the pre-sampling activities listed below. All of the water level measurements for the wells to be sampled during each round will be made in a single day. Wells will be evacuated and sampled during the same day.

PRE-SAMPLING ACTIVITIES

Well Maintenance Check

Prior to every sampling event, a routine inspection of the condition of the protective casing and surface seal will be performed. The protective casing will be inspected for the integrity of the locking cap and the surface seal. In addition, each well will be checked for any other signs of damage or inadvertent entry. Observations of any irregularities will be noted in the field log book, as well as the well number, date, and time.

Air Monitoring

In order to provide workers with the proper respiratory protection for sampling, air monitoring in the breathing zone and immediately over the wellhead will be performed immediately after the initial uncapping. Health and safety procedures that are appropriate to the ambient air conditions will be implemented. Readings for both the breathing zone and wellhead will be recorded in the field log book. See the Health and Safety Plan for respiratory protection action levels, and a description of the proper air monitoring equipment.

Water Level Measurements

The depth to groundwater will be measured with an electronic depth-indicating sounder. The probe will be lowered into the well until the meter indicates water is reached. The probe will be raised above the water level and slowly lowered again until water is indicated. The cable will be held against the side of the inner protective casing for water level measurements and a depth reading taken. The value will be recorded to the nearest 0.01 foot in the field log book. The measurement will be repeated three times and the measurement recorded. The probe will be raised to the surface and together with the amount of cable that was wetted in the well, will be decontaminated with a wipe followed by a distilled/deionized water rinse.

The calibrated cable on the depth indicator will be checked against a surveyor’s steel tape once per quarter year. A new cable will be installed if the cable has changed by more than 0.01 percent (0.01 feet for a 100-foot cable).

WELL EVACUATION

Overburden Monitoring Wells

- The well will be purged with a low flow peristaltic pump. The pump's acrylic or PVC intake tubing will be lowered into the monitoring well to a point that is approximately in the center of the monitoring well screen or in the center of the water column. The discharge end of the tubing will be placed into a flow-through cell from which groundwater quality parameters will be measured. The discharge from the flow-through cell will be routed into a five-gallon bucket for discharge measurement. For sampling water flow will be approximately 0.25 liters per minute or until a constant stream of water is obtained. The water level in the monitoring well will also be monitored and not allowed to drop below 0.125 feet from the original pre-sampling static water level.
- When the groundwater quality is stable indicating that a representative sample of groundwater can be collected, the discharge end of the tubing will be disconnected from the flow-through cell and routed into a five-gallon bucket to collected spills from the filling of sample containers.
- The appropriate sample vials will be filled slowly and with a constant stream of water (flow) to avoid sample aeration and the field parameter tests conducted as described in "Field Measurements."

FIELD MEASUREMENTS

A portion of the groundwater collected during the sampling procedures will be subjected to the field tests of temperature, dissolved oxygen ("DO"), turbidity, specific electrical conductance, oxidation-reduction potential ("ORP") and pH. Field measurements will be conducted on the well purge water immediately prior to sample collection. Groundwater for these tests will be collected and measured in a plastic flow-through cell. All field test parameters will be measured with a portable water quality instrument such as a Horiba U-22 Water Quality Monitoring System. Temperature will be measured to the nearest tenth of a degree and the value recorded in the field log book. Turbidity will be measured in standardized nephelometeric turbidity units ("N.T.U."). After each measurement the N.T.U. value of the sample will be recorded. The goal of the well purging will be to reduce the turbidity of the groundwater extracted from the monitoring well to less than or equal to 50 N.T.U. The specific electrical conductance will be measured to the nearest 1unit and recorded in the field log book. The pH will be measured to the nearest 0.1 pH unit and the reading recorded in the field log book. The DO will be measured to the nearest 0.1 unit and the reading recorded in the field log book. The ORP will be measured to the nearest 1 millivolt and the reading recorded in the field log book. Calibration will be conducted according to manufacturer's specifications.

EQUIPMENT DECONTAMINATION

All of the sampling equipment (excluding the water quality probes) will be decontaminated between sampling events using the following procedures or disposed of, if dedicated equipment is used (i.e. sample tubing).

- An initial wash with trisodium phosphate dissolved in clean water;
- Clean water rinse;
- Pesticide Grade Methanol rinse;
- Air dry.

Decontamination wastewater will be collected in containers and disposed of properly.

SAMPLE LABELS

Sample labels will be placed on all samples and will contain the following information:

- Date and time of collection;
- Sample location;
- Sample number;
- Analysis to be performed; and
- Sampler's initials.

FIELD LOG BOOKS

The field log books used during sampling procedures will include the following information:

- Sampler's name (initials);
- Sampling location;
- Static water level (depth to water);
- Depth to bottom of the well;
- Calculated well volume;
- Actual evacuation volume;
- Date and time;
- Analyses to be performed;
- Preservation method;
- Field meter calibration information;
- General remarks (weather conditions, etc.); and

- Sample number.

All entries will be made in black indelible ink with a ball-point pen and will be written legibly. Entry errors will be crossed out with a single line, dated, and initialed by the person making the correction. Field log books will be reviewed by the Quality Assurance Officer on a weekly basis

SAMPLE CHAIN-OF-CUSTODY

A chain-of-custody form will be completed after sample collection event. The chain-of-custody forms will accompany the samples to the laboratory. The field personnel collecting the samples will be responsible for the custody of the samples until transportation to the laboratory. Sample transfer will require the individuals relinquishing and receiving the samples to sign, date, and note the time on the chain-of-custody forms.

APPENDIX D
WASTE HANDLING

The procedures identified in this Appendix were prepared with the intent of providing instruction for the safe handling, temporary storage and disposal of investigation derived waste and waste possibly generated from the completion of an interim remedial measure (“IRM”). In general, for any of the wastes generated during this project, will be placed in containers compatible with the waste and appropriate containers the type of waste being handled. Health and safety of the site workers is not covered in this procedure.

Investigation Derived Waste

Investigation derived waste can include: drill cuttings, decontamination water, purge water from monitoring wells, solid waste consisting of personnel protective equipment, card board, plastic, and paper. How the waste is handled will be decided based on the expected volume and the consistency of the waste. Consequently the following acceptable containers have been identified:

Drums - Liquid

Steel or plastic 55-gallon drums with closed lids will be utilized to control decontamination water and purge water from monitoring wells. In general, decontamination water will be kept segregated from other liquid waste because of the potential for this waste stream to be handled as a non-hazardous waste. Decontamination water will be pumped from the decontamination area into the drums after sediment has been removed. This will be done to minimize the amount of sediment accumulating in a drum and the possible need to sample the sediment.

Groundwater pumped from monitoring wells during development and sampling will be containerized in steel or plastic closed lid drums. Since development waters may be heavily laden with sediment an open top drum may be used as an interim step before transferring the waste into closed drums. Sediment separated from development water will be temporarily held in an open top drum. In the event free product is found during the development or monitoring well purging, the free product will be placed in a separate drum and appropriately identified.

When each drum is full, a label will be placed on the drum indicating the type of waste, where it is from (monitoring well number, decontamination pit, etc.), and the date it was generated. The drums will be placed in a location where site equipment and trucks will not disturb them and a location where they can be easily managed. Caution tape and, or snow fencing will be used to warn passerby’s of the materials being stored.

Drums – Solids

Steel or plastic open top 55-gallon drums will be used to containerize solids generated by the investigation activities. During the course of the field investigation waste solids will be generated and consist of unsoiled personnel protective equipment, paper, plastic, and card board (“dry waste”), and soil cuttings or sediment. Dry waste will not be co-mingled with other waste and handed as household trash. Personnel protective equipment that has been contaminated with dirt or free product will be separated from the other non-contaminated dry waste and placed in a separate drum.

Soil cuttings or sediment from the decontamination area or development water will be placed into open top steel drums for temporary storage at work locations. At the completion of work at any particular location the drum will be brought to the temporary storage area.

When each drum is full, a label will be placed on the drum indicating the type of waste, where it is from (monitoring well number or decontamination pit), and the date it was generated. The drums will be placed in a location where site equipment and trucks will not disturb them and a location where they can be easily managed. Caution tape and, or snow fencing will be used to warn passerby’s of the materials being stored.

Soil Cuttings and Sediment

Because the cost of the disposal of soil cuttings and sediment is significantly more when the waste is handled in drums, waste of similar quality will be placed on two layers of plastic sheeting. The temporary storage area will be located in an area where site equipment and trucks will not disturb the waste. The storage area will be constructed with a berm made from soil, sand bags or wood boards. The berm will be covered with a plastic sheet. A second plastic layer will drape over the first and have enough material so it can be folded over the waste. This layer will be secured in place with tires or water filled pails.

If some of the waste is stained, giving off volatiles as measured by the organic vapor analyzer, or odorous a second pile may be started. If only a small quantity of waste has these characteristics then it may remain in a drum.

The covered soil pile will be inspected for tears or the accumulation of rain or snow. Water will be drained from the plastic and onto the ground if there is no indication of a tear in the plastic. Water found mixed with the waste will be either pumped into a drum or absorbed and the plastic replaced of covered.

Soil piles will be posted or labeled indicating the type of waste, where it is from (monitoring well number or decontamination pit), and the date it was generated. The piles will be surrounded with caution tape and, or snow fencing to warn passerby’s of the materials being stored.

IRM Waste

IRM waste will be handled like the investigation derived waste if the quantities expected to be generated remain relatively small: a few hundred gallons of water or less than 5-tons of soil. If the IRM will exceed those volumes and weights then tanks or a roll off box will be used to containerize the waste. However, regardless of the size of the container, the same procedures will be used. Waters will be as sediment free as possible and waste in the roll off box will be covered. If the waste is anticipated to be wet, the roll off box will be lined. The containers will be located to facilitate removal and, or to minimize handling. The containers will be labeled indicating the type of waste, where it is from (monitoring well number, decontamination pit, etc.), and the date it was generated. The tanks will have valves locked to minimize the consequences of vandalism. Roll offs will be surrounded with caution tape and, or snow fencing to warn passerby's of the materials being stored.

Waste Characterization

It is anticipated that the waste characterization requirements will closely follow USEPA's RCRA regulations, but these may be changed based on the requirements of the facilities where the waste may be landfilled and, or treated. Samples of the generated waste will be collected at the completion of field work. The goal of the waste characterization will be to remove the waste from the site within 90-days.

APPENDIX 8

SITE MANAGEMENT FORMS

Summary of Green Remediation Metrics for Site Management

Site Name: ______________________________ Site Code: ____________________
Address: ________________________________ City: _______________________
State: ____________ Zip Code: _________ County: ______________________

Initial Report Period (Start Date of period covered by the Initial Report submittal)
Start Date: ____________________

Current Reporting Period
Reporting Period From: ____________________ To: _________________________

Contact Information
Preparer's Name: __________________________ Phone No.: ___________________
Preparer's Affiliation: __________________________________

I. Energy Usage: Quantify the amount of energy used directly on-Site and the portion of that derived from renewable energy sources.

	Current Reporting Period	**Total to Date**
Fuel Type 1 (e.g. natural gas (cf))		
Fuel Type 2 (e.g. fuel oil, propane (gals))		
Electricity (kWh)		
Of that Electric usage, provide quantity:		
Derived from renewable sources (e.g. solar, wind)		
Other energy sources (e.g. geothermal, solar thermal (Btu))		

Provide a description of all energy usage reduction programs for the Site in the space provided on Page 3.

II. Solid Waste Generation: Quantify the management of solid waste generated on-Site.

	Current Reporting Period (tons)	**Total to Date (tons)**
Total waste generated on-Site		
OM&M generated waste		
Of that total amount, provide quantity:		
Transported off-Site to landfills		
Transported off-Site to other disposal facilities		
Transported off-Site for recycling/reuse		
Reused on-Site		

Provide a description of any implemented waste reduction programs for the Site in the space provided on Page 3.

III. Transportation/Shipping: Quantify the distances travelled for delivery of supplies, shipping of laboratory samples, and the removal of waste.

	Current Reporting Period (miles)	**Total to Date (miles)**
Standby Engineer/Contractor		
Laboratory Courier/Delivery Service		
Waste Removal/Hauling		

Provide a description of all mileage reduction programs for the Site in the space provided on Page 3. Include specifically any local vendor/services utilized that are within 50 miles of the Site.

IV. Water Usage: Quantify the volume of water used on-Site from various sources.

	Current Reporting Period (gallons)	**Total to Date (gallons)**
Total quantity of water used on-Site		
Of that total amount, provide quantity:		
Public potable water supply usage		
Surface water usage		
On-Site groundwater usage		
Collected or diverted storm water usage		

Provide a description of any implemented water consumption reduction programs for the Site in the space provided on Page 3.

V. Land Use and Ecosystems: Quantify the amount of land and/or ecosystems disturbed and the area of land and/or ecosystems restored to a pre-development condition (i.e. Green Infrastructure).

	Current Reporting Period (acres)	**Total to Date (acres)**
Land disturbed		
Land restored		

Provide a description of any implemented land restoration/green infrastructure programs for the Site in the space provided on Page 3.

Description of green remediation programs reported above (Attach additional sheets if needed)
Energy Usage:
Waste Generation:
Transportation/Shipping:
Water usage:
Land Use and Ecosystems:
Other:

CERTIFICATION BY CONTRACTOR
I, ____________________________ (**Name**) do hereby certify that I am ______________________ (**Title**) of the Company/Corporation herein referenced and contractor for the work described in the foregoing application for payment. According to my knowledge and belief, all items and amounts shown on the face of this application for payment are correct, all work has been performed and/or materials supplied, the foregoing is a true and correct statement of the contract account up to and including that last day of the period covered by this application. ____ **Date** **Contractor**

APPENDIX 9

FIELD ACTIVITIES PLAN

<u>**FIELD ACTIVITES PLAN**</u>

This Field Activities Plan works in concert with Appendix 7, the SMP's QAPP, and the methods and procedures described in that documents text and appendices. As sampling needs are identified, this appendix will need to be reviewed and updated. Currently, no regularly scheduled sampling is planned.

1.0 GROUNDWATER SAMPLING

Groundwater sampling from the monitoring wells is not required. However, the following procedures are being presented in the event sampling is needed. Tables 2, 5, and 9 should be consulted for attributes of each of the monitoring wells and the groundwater quality found in previous sample events. Appendix 4 also provides monitoring well construction logs for each of the wells.

2.0 GROUNDWATER SAMPLING PROCEDURES

The QAPP provides procedures for groundwater sampling and these should be reviewed for each sampling trip. In general there are three phases: gauging the monitoring well; purging; and sampling.

2.1 Gauging

Gauging of the water level in each monitoring well will be conducted prior to purging and involves two steps using a two-phase or interface electronic water level meter.

- Step 1 – Checking to determine if there is a floating phase product on the groundwater and measuring the depth against the top of the protective casing surround each monitoring well or to the ground surface. Table 9 provides elevations for each point. Then measuring the top of the groundwater surface.
- Step 2 – Checking to determine if there is a deeper or sinking phase product in the bottom of the monitoring well.

All records will be recorded. If a product layer has been found the NYSDEC project manager should be notified before sampling. If a deep product layer is found the probe will be retrieved and cleaned. If a deep product is not found the probe will remain in the well to record the drop in water level during purging.

If the monitoring well has been damaged or if silt has filled the screen interval the NYSDEC project manager should be notified. If silt has filled the monitoring well, the well should be re-developed to remove the silt. This will force the sampling to be delayed approximately 1-week.

2.2 Purging

If a floating or deep product layer is found a sample of the layer should be completed prior to purging.

Purging of the monitoring wells will be done with either a submersible pump or a peristaltic pump. In either case dedicated tubing will be used. The pump or terminal end of the tubing will be placed in the monitoring well at approximately the mid-screen level. Purging of the monitoring well will begin a slow rate (pumping rate) and increase to a point where the water level drops approximately 0.1 of a foot or less. The flow rate will be determined and recorded. Ideally a flow rate that provides a continuous stream of water is wanted; flow interruption can result in air bubbles and increases in dissolved oxygen. If bubble are seen then the water level has dropped below the pump intake and the depths being used should be checked. NYSDEC's project manager should be made aware of the sampling problems.

During the purging procedure field parameters (see SMP Table 7) will be measured and recorded once every 10-minutes until three consecutive measurements are obtained that are stable (within 10-20% of the previous measurement) and the turbidity is less than 50 Nephelometric units. Field parameter measurements will be completed with an instrument measuring the levels in a flow through cell or a combination of using a flow-through cell and a hand-held instrument. Hand-held instruments are sometimes used for turbidity.

2.3 Sampling

Sampling is a continuation of the purging without using the flow through cell. The flow from the pump is now directed to the sample container instead of the flow through cell. Only bottles provided by the analytical laboratory for this sampling project will be used. Once sampling of a monitoring well begins it should not stop until completion.

Once sampling of a monitoring well is completed, the time should be noted and the sample chain of custody completed. The individual bottles should be dried and if needed decontaminated. The bottle labels will be filled out as soon as possible and the samples placed on ice in a sample cooler.

2.4 Analysis and Analytical Methods

All analyses will be completed by a laboratory certified by NYSDOH's Environmental Laboratory Approval Program using methods specified in the QAPP (see Table 1). Sample analysis will include the following: TCL VOCs plus 10 tentative identified compounds ("TICs") with the highest concentrations; TCL SVOCs plus 20 TICs; PCBs; TAL Metals; and Mercury.

In addition to the three monitoring well samples, the following quality assurance samples will also be collected and analyzed: duplicate; matrix spike and matrix spike duplicate; field blank (one sample for each type of pump or tubing used); and trip blank (with each sample cooler submittal for each sampling day).

The laboratory will complete the analysis following ASP methods and provide a report consistent with USEPA's Category B deliverable package and with NYSDEC's EQuIS requirements.

3.0 REPORTING

Following receipt of the sample data field data will be accumulated and put into a tabular format and the data package will be reviewed to determine if all data has been received. The data will be reviewed and a Data Usability Summary Report ("DUSR") prepared. When the DUSR is received and review any data qualifications will be made and the EQuIS database uploaded to NYSDEC. Data tables will be prepared comparing the data to the NYSDEC's groundwater quality criteria and to previous groundwater results. A report will be prepared for submittal with the PRR.

APPENDIX 10

HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN

R. Freedman & Son Property
New York State Department of Environmental Conservation

Site No. 401033

Prepared for:
Eastern Metal Recycling, LLC
143 Harding Avenue
Bellmawr, New Jersey 08031

Prepared by:

Leader Professional Services, Inc.
271 Marsh Road, Suite 2
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December 2020

842.002

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1.0 Purpose

This Health and Safety Plan ("HASP") was prepared to address non-intrusive visual site inspections. For projects involving monitoring well sampling; intrusive work, where the ground surface will be disturbed, projects involving changes to the site's electric service, plumbing, or structural renovations; new building construction; or remediation activities a project specific HASP will be needed.

2.0 Project Personnel Responsibilities

Project organization is presented below in Section 2.5.

2.1 Project Director

The Project Director for this project will be named by the Property Owner or Remedial Party, and has the ability to make decisions involving the technical and funding aspects for the project. The Project Director will also identify a team of professionals whose expertise is required for the project. The Project Director has the authority to direct site operations including the performance of this health and safety plan. Depending on the project all team members will be required to have 29CFR 1910.120 40-Hour Training and have an updated 8-Hour Refresher Training Certificate.

2.2 Project Manager

The Project Manager will have the qualifications to oversee the technical aspects of the project, including staffing, subcontractors, and budget, and as needed will have the approach licenses or certificates to sign all project related forms, documents, and reports. Project Manager will be an employee of the Owner, Remedial Party or a Consultant.

2.3 Health and Safety Officer

The Health and Safety Officer ("HSO") will be a credentialed professional and have the hands-on experience to prepare the site's or project specific HASP. The HSO has the authority to stop work if any operation or site conditions threatens the health and safety of workers or the public. The HSO may designate a member of the work party for site health and safety responsibilities when the HSO cannot be on site. The HSO will have the required 29CFR 1910.120 40-Hour Training and have an updated 8-Hour Refresher Training Certificate.

2.4 Project Team

Personnel and subcontractors on the project team will be responsible for the completion of the work plan's required tasks. All personnel on the project team will comply with the site safety plan and ensure the site safety and health officer or supervisor is notified of any unsafe conditions. It is anticipated that the project team will consist of one to three individuals. This may vary due to any changes that occur during the actual site work. All personnel on the project team will have the required 29CFR 1910.120 40-Hour Training and participate in daily tailgate health and safety meetings.

2.5 Project Organization

Project Manager –
Site Supervisor –
Health and Safety Officer –

3.0 Site Standard Operating Safety Procedures

Standard operating and safety procedures include safety precautions and operating practices that all personnel will follow. These include:

3.1 Personal Precautions

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in any area designated contaminated.

- Hands and face must be thoroughly washed upon leaving the work area.

- Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.

- No facial hair, which interferes with a satisfactory fit of the mask-to-face seal, is allowed on personnel required to wear respirators. Personnel will use the negative pressure fit test prior to each use of the equipment.

- Contact with contaminated or suspected contaminated surfaces should be avoided. Whenever possible, do not walk through puddles, leachate, discolored surfaces, kneel on ground, lean, sit or place equipment on drums, containers, or the ground.

- Medicine and alcohol can enhance or mask the effects from exposure to toxic chemicals. Prescribed drugs should not be taken by field personnel where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverages should be avoided, in the off-duty hours, during the project.

2.2 Operations

- All personnel going on-site must be adequately trained and thoroughly briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures, and communications.

- Any required respiratory protection and chemical protective clothing must be worn by all personnel going into areas designated for wearing protective equipment.

- Personnel on-site must use the buddy system when wearing respiratory protection. As a minimum, one person, suitably equipped, is required as safety backup during initial entry.

- Visual contact must be maintained between pairs on-site and safety personnel. Entry team members should remain together to assist each other during emergencies.

- During continual operations, on-site workers act as safety backup to each other. Off-site personnel provide emergency assistance.

  Communications using radios, hand signals, signs, or other means must be maintained between team members at all times.

- Wind indicators visible to all site personnel should be strategically located throughout the site.

- Personnel and equipment in the contaminated area should be minimized to reduce the potential for cross contamination and the generation of decontamination waste.

- Work areas for various operational activities will be established by the project manager, or his designee, and the HSO.

- Procedures for leaving a contaminated area must be planned and implemented prior to going on-site. Work areas and decontamination procedures have been established based on expected site conditions and are described in the project Work Plan.

3.0 Health and Safety Hazards

The potential hazards that may be experienced during the performance of the Work Plan include: chemical exposures from contact with contaminated soil and groundwater; hazards inherent to working at an active industrial site where trucks and heavy equipment may be operating; slip, trip and fall hazards; and heat stress from performing heavy work while wearing protective clothing. The extent of contamination is well known but monitoring for the presence of organic vapors will be conducted if intrusive work is involved. To prevent un-necessary exposures to vapors and to limit the potential for cross-contamination, all work areas will be limited to outdoor areas and indoor storage and work areas (i.e. warehouse, garage).

To reduce accidents from occurring that involve slip, trip and fall hazards and hypothermia, work will be monitored by the Site HSO or their designee.

Table 1 list potential health and safety hazards that may be encountered based on general site tasks. This list has been compiled based on the scheduled activities and potential site conditions.

4.0 Personal Protective Equipment

4.1 Protective Equipment

All personnel will be provided with appropriate personal safety equipment and protective clothing. Each individual will be properly trained in the use of this safety equipment before the start of field activities. Safety equipment and protective clothing shall be used as directed by the Project Manager and/or Site HSO. All such equipment and clothing will be cleaned and maintained in proper condition by the personnel. The Site HSO will monitor the maintenance of personnel protective equipment to ensure proper procedures are followed.

Personal protective equipment will be worn at all times designated by this Health and Safety Plan. For the purposes of this HASP, protective clothing and equipment are not expected to exceed Level D.

If planned activities involve intrusive work or sampling a separate HASP will be prepared based on the type of activities planned and environmental sampling data and on-site instrument readings, and the type of protective equipment needed.

The personal protective equipment levels designated below are in conformance with EPA criteria for Level A, B, C, and D protection. All respiratory protective equipment used will be approved by National Institute for Occupational Safety and Health ("NIOSH") and Mine Safety and Health Administration ("MSHA"). Although the conditions within the proposed work areas are well known monitoring will be completed at all times, but it is doubtful that levels of respiratory protection will exceed Level D.

4.2 Level C Protection

A. Personal Protective Equipment

- Half-face, air-purifying, canister-equipped respirator (MSHA/NIOSH approved) for acid/gas/organic vapor with particulate filter

- Chemical-resistant clothing (overalls and long sleeved jacket; coveralls or hooded, one piece or two-piece chemical-splash suit; disposable chemical resistant one-piece suits)

- Work Clothes (Long Shelve Shirt and pants)

- Gloves (outer), chemical resistant

- Gloves (inner), chemical resistant

- Boots (inner), leather work shoe with steel toe and shank

- Boots (outer), chemical resistant (disposable*)

- Hard Hat (face shield*)

- Safety Glasses or goggles

- Taping between suit and gloves, and suit and boots

- High visibility vest

*Optional

B. Criteria for Selection

Meeting all of these criteria permits use of Level C Protection.

- Measured air concentration of identified substances will be reduced by the respirator to, at, or below the substance's Threshold Limit Value (TLV)/Permissible Exposure Limits (PEL) and the concentration is within the service limit of the canister.

- Atmospheric contaminant concentrations do not exceed IDLH levels.

- Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect the small area of skin left unprotected by chemical resistant clothing.

4.3 Level D Protection

A. Personal Protective Equipment

- Work Clothes (Long shelve shirt and pants)

- Leather, steel-toed boots

- High visibility vest

- As required:

  - Hard hat
  - Safety glasses/goggles
  - Hearing protection
  - Gloves

B. Criteria for Selection

Meeting all of these criteria permits the use of Level D Protection.

- Measured air concentrations of identified substances are below the substances Permissible Exposure Limit (PEL) or TLV.

- Oxygen content is > 19.5%.

- No unknown substances are present.

5.0 Decontamination

It is expected that the usual level of protection to be Level D. Level C will be used when potential exposures to contaminants justify increased protection. A decontamination zone will be used based on the activities planned and the expected exposure to contaminants. The following decontamination protocol may be used.

5.1 Personnel Decontamination

It is expected that a minimum of Level D decontamination will be continually in effect at the site. On these occasions when higher levels of protection are required, appropriate decontamination procedures will be used. The extent of the decontamination procedures will be at the discretion of the site Health and Safety Officer.

In general, decontamination involves removing potentially contaminated soil from gloves and clothing, followed by scrubbing with a non-phosphate soap/water solution and clean water rinses. As a general rule, protective clothing will be removed in the reverse order as it was put on: gloves and boots off first, followed by protective suits and then breathing apparatus. As the different types of waste are generated, the team members will segregate the waste into different drums.

Potentially contaminated soil and sediment will be placed into one drum and decontamination waste fluid into a second drum. All disposable items will be placed into a dry goods drum.

Certain parts of contaminated respirators, harness assemblies and leather or cloth components, are difficult to decontaminate. If grossly contaminated, they may have to be discarded. Rubber components can be soaked in soap and water and scrubbed with a brush. In addition to being decontaminated, all respirators, non-disposable protective clothing, and other personal articles must be sanitized before they can be used again unless they are assigned to individuals. The manufacturer's instruction should be followed in sanitizing the respirator masks. The Site HSO will be responsible for supervising the proper protective equipment.

All decontamination wastewaters will be collected and disposed of according to applicable regulations. This disposal will be done at the direction of the Project Manager.

5.2 Equipment Decontamination

Decontamination will be applicable to all activities on site and be completed in the contamination reduction zone ("CRZ") section of the exclusion zone. All equipment (i.e., tools, monitoring equipment, etc.) will receive initial decontamination. All equipment that has been in contact with contaminants shall be stored in an area within the limits of the existing exclusion zone or shall be thoroughly decontaminated prior to leaving the area. Decontamination will consist of cleaning of the entire piece of equipment to the satisfaction of the Site Supervisor or the HSO. Decontamination will be a multi-process task, first all loose dirt or other foreign materials will be removed from equipment surface. Scrubbing with a synthetic wire brush may be required to remove materials that adhere to the surfaces. After the loose dirt is removed, the equipment will be washed using a detergent and water solution and a wire brush followed by successive rinses with clean water. Washing with hot water from a power washer may be substituted for a synthetic wire brush.

All dirty equipment will be stored on plastic sheeting in such a manner that decontamination waters can be collected and disposed of in accordance with applicable regulations. Clean equipment not in use will be covered with plastic and stored at a designated storage area.

Air monitoring equipment will be protected with an outer coating (i.e. plastic), if there is a potential for the equipment to come into contact with potentially contaminated materials prior to the initial entry into the exclusion zone. Decontamination will then consist of removal of the protective coating in a manner that will not contaminate the air monitoring equipment.

6.0 Site Air Monitoring

For general inspections site air monitoring is not anticipated.

Field activities associated with the intrusive work tasks or groundwater monitoring at the site may potential cause hazardous conditions to those on site and those residents and workers on the neighboring properties. The Site Air Monitoring address those individuals in specific work areas and on the site in general. To monitor conditions on the site and specifically those conditions which may impact the neighboring properties a Community Air Monitoring Program ("CAMP") has been developed and is presented in Appendix 6 of this SMP.

The Site Air Monitoring program is designed to monitor hazardous conditions, such as the release of hazardous substances into the worker's breathing zone. These substances may be in the form of vapors, dusts, or mists that can enter the body through ingestion, inhalation, or direct skin or eye contact. If the HSO, relying on instrument observations and odor, determines that a condition exists in which workers may be exposed to airborne hazardous materials, the HSO will upgrade the team's level of respiratory protection and complete chemical specific monitoring.

The following paragraphs describe the monitoring parameters to be evaluated during the start of the project. As the project continues, other site-specific monitoring will be required based on site conditions and experience at the site. Because this project will be completed in the winter/early spring and the proposed work area is covered with a combination of asphalt, gravel, or grass fields, there is a concern about contaminated dust being an issue. Potential combustible concentrations of petroleum related compounds have not been identified to date as a concern in the soil or groundwater, thus the necessity for oxygen and combustible gas monitors is not supported. All instruments to be used during site activities will meet the established requirements set forth by OSHA, MSHA, NIOSH, and state agencies where applicable.

Observations will be made during work progress with a direct reading organic vapor meter. Monitoring will take place in the work zone and workers breathing zone, up and down-wind from the work zone and at the Site perimeter. Monitoring within the work zone will be taken at least every 15 to 30-minutes. Monitoring up and down-wind of the work zone will be completed at least every 30 to 60 minutes and monitoring at the Site perimeter will be completed at least every 60 minutes. If elevated readings are obtained (elevated compared to up-wind readings or compared to Site specific action levels), then the frequency of taking measurements will be increased at the monitoring stations.

If dust exceeds thresholds at the upwind monitoring location during the investigative activities, the HSO will instruct the site manager to take an appropriate level of corrective action. If dust from the sampling or drilling operations exceed project thresholds at the downwind monitoring location compared to the upwind monitoring location, the HSO will determine what is causing the problem and seek a remedy, and if needed, they will stop work until it can be corrected. As a result, air monitors will be located up and down wind of the investigation work.

Based on preliminary monitoring well sampling data, it is anticipated that organic vapors will be below 1 ppm. Organic vapor concentrations will be the primary measure for upgrading or downgrading worker respiratory protective equipment and implementing additional precautions or procedures (See Table 2, Action Levels).

All site monitoring will be conducted by or under the direction of the Site HSO. All readings obtained will be recorded in a dedicated site notebook maintained by the Project Manager or their designee. The Site HSO or their designee will maintain all monitoring instruments throughout the site investigation to ensure their reliability and proper operation.

7.0 Action Levels

Action levels have been established for the upgrade and downgrade in the levels of personal protective equipment and can be used regardless of the planned activity. For the purposes of this HASP, no intrusive work will be conducted, therefore no instrument monitoring will be conducted. If odors or spills are noticed, the inspectors will leave the area and notify the site contact and the Project Manager.

Table 2 lists the action levels, airborne concentrations and their respective personal protection for unknown sources of organic vapor concentrations. Section 8.0 discusses the minimal personal protection required for specific site activities based on current information. Changes to these specified levels are dependent on the result of air monitoring as outlined below.

8.0 Site Activities and Associated Personnel Protective Requirements

For the purposes of the planned site inspections, Level D protective clothing – general work clothes, will be used, but site weather conditions may require appropriate clothing types and shoes.

The levels of protection are assigned based on the anticipated Site activities, weather, and our best estimate of chemical and physical exposure. The site HSO will determine the level of protection to be used for each activity and revise those levels of protection, up or down, based on air monitoring results, and on-site assessments of actual exposures.

- *Level D* - General site work with limited physical contact with contaminated soil by personnel. If workers must pick up contaminated tools or a soil samples, protective chemical resistant gloves will be worn. Respiratory protection is not required because contaminant action levels cited on Table 2 are not exceeded.

- *Modified Level C* - General site work where personnel will be in direct contact with contaminated soil or groundwater, but respiratory protection is not required because contaminant action levels cited on Table 2 are not exceeded.

- *Level C* - General site work where personnel will be in direct contact with contaminated soil or groundwater, and organic vapor measurements or dust measurements are greater than those action levels cited on Table 2.

9.0 Contingency Plan

The Project Manager/Supervisor or HSO is responsible for implementing the Contingency Plan whenever there is either a threat to human health or an environmental hazard. Possible Contingency Plan situations include actual or imminent fires, explosions or spills.

The individual discovering the emergency situation is to notify the Project Supervisor or HSO who will then notify the representative for Digital Alert Systems and the appropriate organizations as described in Table 3.

9.1 Assessment

The Project Manager/Supervisor or HSO is responsible for ascertaining any possible health or environmental hazards and determining the need for evacuation and notification of the proper authorities.

9.2 Control Procedures

The team member discovering a fire, explosion, or other emergency situation will call 911 immediately. If a spill is found which can be controlled with on-site resources the team will start to control the spill, then notify the Project Supervisor, site contact or site HSO as soon as possible, and provide the information listed in Table 3.0. If additional resources are need or if a public roadway, sewer, or general public could be impacted 911 should be called.

The Project Supervisor or HSO will assess the situation and notify the property owner/remedial party representative to determine if it can be adequately handled by Site personnel or if additional assistance is needed.

Before any team member attempts to extinguish a fire, clean-up and contain a spill or take any action, they must be aware of the properties of the material involved and its associated hazards. All team members will be familiarized with this information during the initial tail gate safety meeting and are instructed on the proper protective clothing to be worn in such a situation.

Table 3 includes a list of the organizations that are available to provide emergency assistance.

9.3 Fire and/or Explosion

The most serious emergency situation that could be faced at the site would be a chemical release, explosion, or fire. In the event of a fire or explosion, 911 should be notified immediately, then as appropriate the Project Manager or HSO should be notified as described in the preceding section.

Small fires can be extinguished using a fire extinguisher located at the site. Larger fires will require the assistance of the fire department. The fire department will be informed of the nature of the fire and wastes at the site, and if water can be used to extinguish the fire.

9.4 Spill and/or Material Releases

The procedure for notification of the Project Manager/Supervisor and, or HSO are described in Section 9.2. Immediately following the discovery of a spill the NYSDEC will be notified unless the spill is small (10-gallons of petroleum product(s)) and can be immediately be remediated, then NYSDEC will be notified once the spill has been addressed. In addition, the Comprehensive Environmental Response, Compensation, and Liability act of 1980 (CERCLA, or Superfund) requires that the National Response Center be notified of any release in excess of the reportable quantity of a listed material.

The approach to spill clean-up depends on the material release, the amount and the location. The first step is to determine what is being released and the source of the material. Once it is determined what the material then a corrective action plan can be made and implement with the appropriate PPE and tools correct it. This include rubber boots and gloves and lifting a container, closing a valve or turning off a pump or donning an air purifying respirator, Tyvek suit, boots, gloves, and introducing ventilation to the area. In the event of a small spill, absorbent granules or absorbent pads will be utilized to soak up the spilled material. The spent absorbent and PPE would then be containerized in Department of Transportation approved drums.

In the event a large spill occurs, NYSDEC, the local Fire Department and the owner's preferred remedial contractor will be called to bring in their expertise and equipment.

10.0 Work Areas

For the purpose of this site inspection HASP there will be no designation of work areas since no intrusive work will be conducted, but site inspectors should be aware of the activities being conducted at the site on that particular day so all of the hazards can be evaluated.

For projects where intrusive work is being conducted the following should be considered.

The Project Manager/Supervisor, HSO, the owner's representative and if needed the Contractor, will clearly layout and identify work areas in the field and will limit equipment, operations, and personnel as defined in the following areas:

a) "Exclusion Zone" - This area will include all areas where environmental monitoring has shown or it is suspected that a contamination may exist and be a potential exposure problem to workers. The level of personnel protective equipment required in these areas will be determined by the Site HSO. The area will be clearly delineated from the decontamination area. As work within the hazardous zone proceeds, the delineating boundary will be relocated as necessary to prevent the accidental contamination of nearby people and equipment. The Exclusion Zone will be delineated by plastic caution tape, barriers, or fencing (e.g., chain link, snow, or orange plastic fencing).

b) Contamination Reduction Zone (CRZ) - This zone will occur at the interface of "Contaminated" and "Clean" areas and will provide for the decontamination of equipment and materials and the transfer of equipment from the Clean Area to the Exclusion Zone. This area will contain all required emergency equipment, etc. This area will be clearly delineated by plastic tape, barriers or fencing (e.g., chain link, snow, or orange plastic fencing).

c) Support Zone ("Clean" Area) - This area is the remainder of the work site and project site. The "Clean" area will be clearly delineated and procedures implemented to prevent active or passive contamination from the work site.

The function of the "Clean" area includes:

1) An entry area for personnel, material, and equipment to the "Contaminated Zone" area of site operations through the neutral zone.

2) An exit for decontaminated personnel, materials, and equipment from the "CRZ" area of site operations; and

3) A clean storage area for safety and work equipment.

11.0 Safety Equipment and Protective Clothing Specifications

For the work being conducted under this HASP no specialized PPE will be required assuming weather conditions are moderate and there is no intrusive work being conducted on the day of the site visit.

For activities involving other intrusive work, redevelopment of the property or new construction the following should be considered when planning the activities and a project specific HASP.

<u>All</u> project team members and contractors will have the following safety equipment:

- Air purifying respirator with appropriate cartridges
- All protective clothing including, but not limited to:
    - Tyvek and washable PVC rain suits
    - Gloves
    - Boots
- Safety glasses
- Hearing protection
- Hard hats
- High visibility vest.

12.0 Air Emissions Control

No air emission control equipment will be required for the site inspection. As activities change, especially those with intrusive activity or vehicle traffic may cause airborne dust, specific air monitoring equipment should be employed to determine if air emission controls are required.

The Project Manager/Supervisor and/or the HSO will make the determination for requiring monitoring and control of air emissions with the assistance of the following monitoring equipment and the action levels cited on Table 2. It is anticipated that an organic vapor analyzer and dust monitors to measure the concentration of most organic contaminants and particulates in the air. These two measurement devices will handle the bulk of the real-time contaminant monitoring.

13.0 Additional Health and Safety Comments

1) The Site HSO will ensure that all safety equipment and protective clothing is kept clean and well maintained.

2) All prescription eyeglasses in use on this project will be safety glasses and will be compatible with respirators. No contact lenses shall be allowed on-site.

3) All disposable or reusable gloves worn on the site will be approved by the HSO.

4) During periods of prolonged respirator usage in contaminated areas, respirator filters will be changed upon breakthrough and at a minimum filters will be changed daily.

5) Footwear used on-site will be covered by rubber over-boots when entering or working in the "Exclusion Zone" area or "CRZ." Boots will be washed with water and detergents to remove dirt and contaminated sediment before leaving the "CRZ."

6) All personnel protective equipment used on-site will be decontaminated or disposed of at the end of the workday.

7) All air purifying respirators will be individually assigned and not interchanged between workers without cleaning and sanitizing.

8) Any team member or Contractor unable to pass a fit test as a result of facial hair or facial configuration shall not enter or work in an area that requires respiratory protection.

9) The Contractor will ensure that all project team members shall have vision or corrected vision to at least 20/40 in one eye.

10) Team members found to be disregarding any provision of this plan will, at the request of the HSO, be barred from the project.

11) Used disposable outerwear will be removed upon leaving CRZ and will be placed inside disposable containers labeled for that purpose. These containers will be stored at the site at the designated staging area. Leader

will be responsible for proper disposal of these materials at the completion of the project.

12) Tyvek or PVC rain suits that become torn or badly soiled will be replaced immediately.

13) Eating, drinking, chewing gum or tobacco, smoking, etc., will be prohibited in the exclusion zones and CRZ zones.

14) All personnel will thoroughly cleanse their hands, face, forearms, and other exposed areas prior to eating, smoking, or drinking.

15) All personnel will wash their hands, face, and forearms before using toilet facilities.

16) No alcohol, firearms, or drugs (without prescription) will be allowed on-site at any time.

14.0 Miscellaneous Health and Safety Items

14.1 Hypothermia

When the ambient air temperature dips below 40° F. the Site HSO will begin to monitor employees for signs of hypothermia. Monitoring will take the form of measuring oral temperatures. The air temperature will be measured two times a day when the air temperature is expected to be below 40° F or as determined by the HSO. As the air temperature dips below 32° F., oral temperatures will be measured at the direction of the HSO and, or every hour during work periods.

In the event that the oral temperature at the beginning of the rest period drops below 96° F., the employee will be decontaminated and be advised to proceed to a heated room or vehicle and remove wet clothing and to drink warm fluids. At the end of the rest period, the oral temperature will be taken again to ensure that the employee's temperature is above 96° F. If the oral temperature has remained below 96° F., the employee will be advised to take a shower to increase his/her temperature. However, if the oral temperature still remains below 96° F. after the shower, the employee will be immediately sent to consult with a physician.

A fluid/electrolyte replacement will be used as necessary to minimize fluid loss. This liquid supplement will be stored in a cooler or thermos at the edge of the decontamination zone in plastic squeeze bottles. The plastic bottles will be marked with individual's names. Disposable cups with lids and straws may be used in place of the squeeze bottles.

Prior to drinking within the decontamination zone, the project personnel shall follow the following decontamination procedures:

1) Personnel shall wash and rinse their outer gloves and remove them.

2) Personnel shall remove their hard hats and respirators and place on a table.

3) Personnel shall remove their inner gloves and place them on a table.

4) Personnel shall wash and rinse their face and hands.

5) Personnel shall carefully remove their personal bottle or cup from the cooler to ensure that their outer clothes do not touch any bottles, cups, etc.

6) The used bottle or cups will not be returned to the cooler, but will be placed in a receptacle or container to be cleaned or disposed of.

7) Personnel shall replace their respirators, hard hats, gloves, and tape gloves prior to re-entering the hazardous zone.

14.2 Retention On-Site

During a project where waste materials will be generated, it is expected these materials will be retained on-site until removed by the owner or their contractor. All waste containers will be labeled according to DOT and other regulations where appropriate. Waste materials, both drummed and bulk, will be stored in designated areas. All waste drums will be sealed before they are moved from the exclusion zone.

14.3 Equipment and Material Decontamination

All non-disposable PPE, tools, and equipment used for a project where tools and equipment will be in contact with potentially contaminated materials, shall be thoroughly decontaminated using procedures described in the project-specific Work Plan before it is removed from the project site. Debris and contaminated clothing and tools which cannot be decontaminated, shall be disposed of.

14.4 Communications

Telephone communications will be available at all times on the site. A telephone will be maintained with the Project Manager, Site Supervisor, or the consultant's staff.

Communication procedures are outlined in the Contingency Plan in Section 9.0 of the Health and Safety Plan.

Table 3 contains an emergency call list and will be posted in one of the team member's vehicles and in the owner's office/garage.

14.5 On-Site Hygiene Facilities

The office lavatories or portable facilities will be available for decontaminated site workers. Water will be available in the CRZ for decontamination.

A first aid kit will be kept in the support zone at the Site at all times.

15.0 Tailgate Safety Meetings

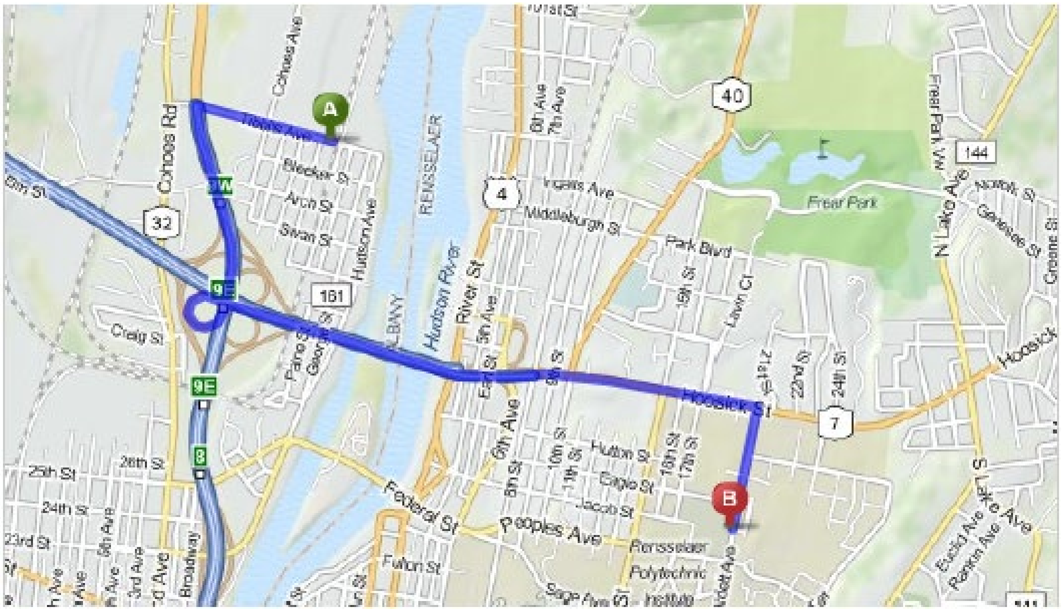
The HSO or the designated representative will conduct daily tailgate safety meetings each workday and will be mandatory for all project personnel. The meetings will provide information on the anticipated site conditions and the work to be completed that day. Appendix A contains a form for documenting Safety Meetings. Completed forms will be retained in the project file.

Additional safety meetings will be held on an as required basis.

16.0 Medical Surveillance

All team members and subcontractors that may potentially have contact with hazardous substances at concentrations above the permissible exposure level (PEL) will be part of a Medical Monitoring Program as outlined in 29CFR 1910.134 and 29CFR 1910.120.

NORTH



1. Exit site and turn right on to Cannon Street.
2. Turn right onto Tibbits Avenue (stop sign) and drive approximately 0.4-miles to Rt. 787
3. Turn left on to Rt. 787 and drive south approximately 0.9 miles to Rt. 7
4. Take turn off and follow signs for Rt. 7 E (Troy/Bennington)
5. Take Rt. 7E east approximately 1.4 miles to Burdett Avenue
6. Turn right on to Burdett Avenue and drive south approximately 0.3-miles to hospital.
7. Hospital is on the right.

Title	Route to Hospital 25 Tibbits Avenue Green Island, NY
Prepared For	Eastern Metal Recycling, LLC 143 Harding Avenue, 1st. Floor Bellmawr, New Jersey 08031

LEADER

Leader Professional Services
271 Marsh Road, Suite 2
Pittsford, NY 14534
(585) 248-2413
FAX (585) 248-2834

Project	842.001
Date	6/26/20
Scale	Not to Scale
Drawn	PVS
Checked	MPR
File Name	HASP
Figure	1

TABLE 1

KNOWN AND POTENTIAL HEALTH AND SAFETY HAZARDS
FREEDMAN & SONS PROPERTY
GREEN ISLAND, NEW YORK

Known and Potential Site Hazards: *Chemical* (See Appendix B for information sheets and/or MSDSs)

1) Contaminants

- PCB
- Arsenic
- Lead
- Mercury
- Chromium
- SVOCs

2) Review of Symptoms

Symptoms of exposure to hazardous wastes and in particular to the contaminants above will be reviewed with all site personnel. Symptoms of both acute and chronic exposures will be covered. In addition, the on-site coordinators will be advised to watch for outward evidence of changes in workers' health. These outward symptoms may include fatigue, tremor, insomnia, skin irritations or discoloration, eye, nose and throat irritation, cough, or abdominal soreness.

Note the number and nature of potential contaminants mandate that contact of waste materials with the exposed skin must not be allowed to occur under any circumstances.

Known and Potential Site Hazards: *Non-Chemical*

- General Physical Hazards. Since the project will take place at an active truck terminal, the physical hazards include:

  Vehicular traffic
  Sharps (metals and glass)
  Underground and aboveground utilities
  Slip, trip, and fall

TABLE 2

ACTION LEVELS
FREEDMAN & SONS PROPERTY
GREEN ISLAND, NEW YORK

Unknown Organic Vapor Concentrations (ppm)[1]	Level of Protection
< 1	Level D
$\geq$ 1 < 10	Level C
>10	Level B
Anticipated Chemical Contaminants[2]	**Time Weight Average (ppm)**
Total Dust	10 mg/ mg/M^3
Arsenic	0.01 mg/M^3
Benzo(a)pyrene (as coal tar pitch)	0.2 mg/M^3
Chromium	0.1 (Chrome VI) to 0.5 mg/M^3 (Chrome III)
Copper	1 mg/M^3
Lead	0.05 mg/M^3
Mercury	<0.025 mg/M^3
PCBs	0.001 to 0.5 mg/M^3

Note:

1 Unknown organic vapor action levels are based on the lowest known exposure limits for chlorine (PEL = 1 ppm, IDLH = 30 ppm).

TABLE 3

EMERGENCY CALL LIST
FREEDMAN & SONS PROPERTY
GREEEN ISLAND, NEW YORK

<u>Fires - Spills</u>

Village of Green Island Fire Department	911

<u>Public Services</u>

Green Island Police Emergency	911

<u>Emergency Medical Services</u>

Samaritan Hospital	(518) 271-3300

SPILL NOTIFICATION

<u>Agencies</u>

National Response Center	(800) 424-8802
Local DEC Office Region 4	(800) 457-7362

Provide the following information to the agencies:

- Name of person making the call
- Company and location
- Nature of fire (fire calls only)
- Name and estimated amount of chemical released to the environment (spills only)
- Time of release
- Remedial action taken to correct the problem

Site Contacts

Kyle Forster (NYSDEC Project Manager)	(518) 402-8644

TBD

APPENDIX A

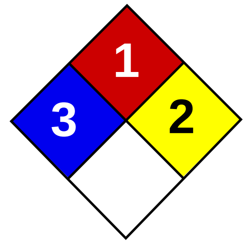
SAFETY MEETING SIGN-OFF SHEETS

SAFETY MEETING ATTENDENCE SIGN-OFF SHEET

Person/Company	Date

APPENDIX B

MSDS



Health	3
Fire	1
Reactivity	2
Personal Protection	E

Material Safety Data Sheet
Arsenic MSDS

Section 1: Chemical Product and Company Identification

Product Name: Arsenic

Catalog Codes: SLA1006

CAS#: 7440-38-2

RTECS: CG0525000

TSCA: TSCA 8(b) inventory: Arsenic

CI#: Not applicable.

Synonym:

Chemical Name: Arsenic

Chemical Formula: As

Contact Information:

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

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

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

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

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Arsenic	7440-38-2	100

Toxicological Data on Ingredients: Arsenic: ORAL (LD50): Acute: 763 mg/kg [Rat]. 145 mg/kg [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, lungs, the nervous system, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

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

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

Serious Skin Contact: Not available.

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

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

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

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

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

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:
Material in powder form, capable of creating a dust explosion. When heated to decomposition it emits highly toxic fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, acids, moisture.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.01 from ACGIH (TLV) [United States] [1995] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Lustrous solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 74.92 g/mole

Color: Silvery.

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

Boiling Point: Not available.

Melting Point: Sublimation temperature: 615°C (1139°F)

Critical Temperature: Not available.

Specific Gravity: 5.72 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents, acids, moisture.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 145 mg/kg [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH. Causes damage to the following organs: kidneys, lungs, the nervous system, mucous membranes.

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

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

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

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Arsenic UNNA: UN1558 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Arsenic California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Arsenic Pennsylvania RTK: Arsenic Massachusetts RTK: Arsenic TSCA 8(b) inventory: Arsenic

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

Other Classifications:

WHMIS (Canada):
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R22- Harmful if swallowed. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 1

Reactivity: 2

Personal Protection: E

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

Health: 3

Flammability: 1

Reactivity: 2

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -Liste des produits purs tératogènes, mutagènes, cancérogènes. Répertoire toxicologique de la Commission de la Santé et de la Sécurité du Travail du Québec. -Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec. -SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangeureuses au canada. Centre de conformité internatinal Ltée. 1986.

Other Special Considerations: Not available.

Created: 10/09/2005 04:16 PM

Last Updated: 06/09/2012 12:00 PM

Chromium Trioxide, ACS

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 10/18/2013 Revision date: 01/24/2020 Supersedes: 03/12/2019 Version: 2.1

SECTION 1: Identification

1.1. Identification

Product form	:	Substance
Substance name	:	Chromium Trioxide, ACS
CAS-No.	:	1333-82-0
Product code	:	LC13090
Formula	:	CrO_3
Synonyms	:	chromia / chromium (VI) oxide / chromic anhydride / chromic trioxide / chromic acid / chromium anhydride / chromium oxide,red / monochromium oxide / red oxide of chromium

1.2. Recommended use and restrictions on use

Use of the substance/mixture	:	Oxidant Reagent
Restrictions on use	:	Not for food, drug or household use

1.3. Supplier

LabChem, Inc.
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

1.4. Emergency telephone number

Emergency number	:	CHEMTREC: 1-800-424-9300 or +1-703-741-5970

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Oxidizing solids Category 1	H271 May cause fire or explosion; strong oxidizer
Acute toxicity (oral) Category 3	H301 Toxic if swallowed
Acute toxicity (dermal) Category 2	H310 Fatal in contact with skin
Acute toxicity (inhalation:dust,mist) Category 2	H330 Fatal if inhaled
Skin corrosion/irritation Category 1A	H314 Causes severe skin burns and eye damage
Respiratory sensitization, Category 1	H334 May cause an allergy or asthma symptoms or breathing difficulties if inhaled
Skin sensitization, Category 1	H317 May cause an allergic skin reaction
Germ cell mutagenicity Category 1B	H340 May cause genetic defects
Carcinogenicity Category 1A	H350 May cause cancer (Inhalation)
Reproductive toxicity Category 2	H361 Suspected of damaging fertility or the unborn child
Specific target organ toxicity (repeated exposure) Category 1	H372 Causes damage to organs (kidneys, liver, respiratory system, Skin, eyes) through prolonged or repeated exposure
Hazardous to the aquatic environment - Acute Hazard Category 1	H400 Very toxic to aquatic life
Hazardous to the aquatic environment - Chronic Hazard Category 1	H410 Very toxic to aquatic life with long lasting effects

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US)	:	Danger
Hazard statements (GHS US)	:	H271 - May cause fire or explosion; strong oxidizer H301 - Toxic if swallowed H310+H330 - Fatal in contact with skin or if inhaled H314 - Causes severe skin burns and eye damage H317 - May cause an allergic skin reaction H334 - May cause an allergy or asthma symptoms or breathing difficulties if inhaled H340 - May cause genetic defects

H350 - May cause cancer (Inhalation)
H361 - Suspected of damaging fertility or the unborn child
H372 - Causes damage to organs (kidneys, liver, respiratory system, Skin, eyes) through prolonged or repeated exposure
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS US) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, sparks, open flames. - No smoking.
P220 - Keep/Store away from clothing, combustible materials
P221 - Take any precaution to avoid mixing with combustibles
P260 - Do not breathe dust.
P262 - Do not get in eyes, on skin, or on clothing.
P264 - Wash exposed skin thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P283 - Wear fire/flame resistant/retardant clothing.
P284 - Wear respiratory protection.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P306+P360 - If on clothing: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P310 - Immediately call a poison center or doctor/physician.
P363 - Wash contaminated clothing before reuse.
P370+P378 - In case of fire: Use carbon dioxide (CO2), powder, alcohol-resistant foam to extinguish
P371+P380+P375 - In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
P391 - Collect spillage.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container to comply with local, state and federal regulations.

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%	GHS US classification
Chromium Trioxide, ACS (Main constituent)	(CAS-No.) 1333-82-0	100	Ox. Sol. 1, H271 Acute Tox. 3 (Oral), H301 Acute Tox. 2 (Dermal), H310 Acute Tox. 2 (Inhalation:dust,mist), H330 Skin Corr. 1A, H314 Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 1B, H340 Carc. 1A, H350 Repr. 2, H361 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general	: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
First-aid measures after inhalation	: Remove the victim into fresh air. Immediately consult a doctor/medical service.
First-aid measures after skin contact	: Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.
First-aid measures after eye contact	: Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist.
First-aid measures after ingestion	: Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Immediately consult a doctor/medical service. Call Poison Information Centre (www.big.be/antigif.htm). Ingestion of large quantities: immediately to hospital. Take the container/vomit to the doctor/hospital. Do not give chemical antidote.

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms	: Toxic if swallowed. Fatal in contact with skin. Causes severe skin burns. Fatal if inhaled. Causes serious eye damage. Caution! Substance is absorbed through the skin.
Symptoms/effects after inhalation	: Dry/sore throat. Coughing. Corrosion of the upper respiratory tract. Runny nose. Respiratory difficulties. FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible laryngeal spasm/oedema. Risk of lung edema.
Symptoms/effects after skin contact	: Caustic burns/corrosion of the skin.
Symptoms/effects after eye contact	: Corrosion of the eye tissue. Inflammation/damage of the eye tissue.
Symptoms/effects after ingestion	: Nausea. Burns to the gastric/intestinal mucosa. Abdominal pain. Blood in vomit. Blood in stool. Shock. Disturbances of consciousness. FOLLOWING SYMPTOMS MAY APPEAR LATER: Change in urine output. Renal disease. Enlargement/disease of the liver. Change in the blood composition.
Chronic symptoms	: Skin rash/inflammation. Affection of the nasal septum. Nosebleeding. Respiratory difficulties. Possible inflammation of the respiratory tract. Risk of pneumonia. Lung tissue affection/degeneration. Inflammation/damage of the eye tissue. Enlargement/affection of the liver.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Water. Quick-acting ABC powder extinguisher. Quick-acting CO2 extinguisher. Quantities of water.
Unsuitable extinguishing media	: Foam. Foam.

5.2. Specific hazards arising from the chemical

Fire hazard	: DIRECT FIRE HAZARD. Non combustible. INDIRECT FIRE HAZARD. May cause fire or explosion; strong oxidiser. Reactions involving a fire hazard: see "Reactivity Hazard".
Explosion hazard	: INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard".

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire	: Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions	: Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
Protection during firefighting	: Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Gloves. Face-shield. Corrosion-proof suit. Dust cloud production: compressed air/oxygen apparatus. Dust cloud production: dust-tight suit.

Emergency procedures : Mark the danger area. Prevent dust cloud formation. No naked flames. Corrosion-proof appliances. Keep containers closed. Wash contaminated clothes. In case of reactivity hazard: consider evacuation.

Measures in case of dust release : In case of dust production: keep upwind. In case of dust production: consider evacuation. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

Protective equipment : Do not breathe dust. Equip cleanup crew with proper protection.

Emergency procedures : If a major spill occurs, all personnel should be immediately evacuated and the area ventilated. Stop leak if safe to do so. Ventilate area.

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment : Contain released substance, pump into suitable containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray. Take account of toxic/corrosive precipitation water.

Methods for cleaning up : Spill must not return in its original container. Prevent dispersion by covering with dry sand/earth. Do not take up in combustible material such as: saw dust. Wetted substance: mix with dry sand or powdered limestone. Scoop solid spill into closing containers. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Pulverization rapidly increases toxic concentration.

Precautions for safe handling : Avoid raising dust. Keep away from naked flames/heat. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Keep the substance free from contamination. Use corrosionproof equipment. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep container tightly closed.

Hygiene measures : Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Incompatible products : aluminum. combustible materials. metals. Strong oxidizers. Strong reducing agents.

Incompatible materials : Moisture.

Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources.

Prohibitions on mixed storage : KEEP SUBSTANCE AWAY FROM: combustible materials. reducing agents. (strong) bases. oils-fats. metals. halogens. organic materials. alcohols. strong acids.

Storage area : Store in a dry area. Store in a dark area. Keep container in a well-ventilated place. Fireproof storeroom. Keep locked up. Unauthorized persons are not admitted. Detached building. Keep only in the original container. Meet the legal requirements.

Special rules on packaging : SPECIAL REQUIREMENTS: hermetical. watertight. corrosion-proof. dry. clean. shock-absorbing. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials : MATERIAL TO AVOID: paper. wood. steel. aluminium. iron. copper. nickel. bronze. plastics.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Chromium Trioxide, ACS (1333-82-0)		
ACGIH	ACGIH TWA (mg/m³)	0.0002 mg/m³ (Inhalable fraction)
ACGIH	ACGIH STEL (mg/m³)	0.0005 mg/m³ (Inhalable fraction)

Chromium Trioxide, ACS (1333-82-0)		
OSHA	OSHA PEL (TWA) (mg/m³)	0.005 mg/m³
IDLH	US IDLH (mg/m³)	15 mg/m³
NIOSH	NIOSH REL (TWA) (mg/m³)	0.001 mg/m³

8.2. Appropriate engineering controls

Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Safety glasses. Gloves. Protective clothing. High dust production: self-contained breathing apparatus. Combined gas/dust mask with filter type E/P2.

Materials for protective clothing:

GIVE GOOD RESISTANCE: butyl rubber. PVC

Hand protection:

Gloves

Eye protection:

Face shield. In case of dust production: protective goggles

Skin and body protection:

Corrosion-proof clothing. In case of dust production: head/neck protection

Respiratory protection:

Dust production: dust mask with filter type P3. High dust production: self-contained breathing apparatus

Personal protective equipment symbol(s):

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Crystalline solid. Crystalline powder. Needles. Flakes.
Color	: Dark red to red-violet
Odor	: Odorless
Odor threshold	: No data available
pH	: No data available
Melting point	: 196 °C (EU Method A.1: Melting/freezing point)
Freezing point	: No data available
Boiling point	: Not applicable (decomposes)
Flash point	: Not applicable
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: Not applicable
Relative vapor density at 20 °C	: Not applicable
Relative density	: 2.7 (OECD 109: Density of Liquids and Solids)
Specific gravity / density	: 2700 kg/m³
Molecular mass	: 99.99 g/mol

Solubility	:	Exothermically soluble in water. Soluble in ethanol. Soluble in ether. Soluble in acids. Soluble in nitric acid. Soluble in sulfuric acid. Water: 166.7 g/100ml (EU Method A.6: Water solubility)
Log Pow	:	No data available
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	250 °C
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosion limits	:	No data available
Explosive properties	:	Not explosive.
Oxidizing properties	:	May cause fire or explosion; strong oxidiser.

9.2. Other information

SADT	:	Not applicable
VOC content	:	0 %
Other properties	:	Hygroscopic. Substance has acid reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

Risk of explosion with combustible materials. Reacts with organic material: risk of spontaneous ignition. Reacts violently with many compounds e.g.: with (strong) reducers, with (some) acids and with oils/fats: (increased) risk of fire/explosion. When decomposing on exposure to temperature rise: oxidation which increases fire hazard. Reacts violently on exposure to water (moisture) with (some) bases. Reacts on exposure to water (moisture) with (some) metals.

10.2. Chemical stability

Unstable on exposure to moisture.

10.3. Possibility of hazardous reactions

May react violently with reducing agents.

10.4. Conditions to avoid

Avoid dust formation. Finely divided metals. Incompatible materials. Moisture.

10.5. Incompatible materials

alcohols. Aldehydes. aluminum. combustible materials. metals. Strong reducing agents. Strong bases.

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Toxic if swallowed.
Acute toxicity (dermal)	:	Fatal in contact with skin.
Acute toxicity (inhalation)	:	Fatal if inhaled.

Chromium Trioxide, ACS (1333-82-0)	
LD50 oral rat	52 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	57 mg/kg (Equivalent or similar to OECD 402, 24 h, Rabbit, Male / female, Experimental value, Dermal, 14 day(s))
LC50 inhalation rat (mg/l)	0.217 mg/l (EPA OTS 798.1150: Acute inhalation toxicity, 4 h, Rat, Male / female, Experimental value, Inhalation (aerosol), 14 day(s))
ATE US (oral)	52 mg/kg body weight
ATE US (dermal)	57 mg/kg body weight
ATE US (vapors)	0.217 mg/l/4h
ATE US (dust, mist)	0.217 mg/l/4h
Additional information	An oral toxicity study of chromium trioxide conducted on rats in 1989 found the average LD50 to be 51.9 mg/kg.

Skin corrosion/irritation	:	Causes severe skin burns.
Serious eye damage/irritation	:	Assumed to cause serious eye damage

Respiratory or skin sensitization	:	May cause an allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ cell mutagenicity	:	May cause genetic defects.
Carcinogenicity	:	May cause cancer (Inhalation).

Chromium Trioxide, ACS (1333-82-0)	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	Known Human Carcinogens

Reproductive toxicity	:	Suspected of damaging fertility or the unborn child.
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Causes damage to organs (kidneys, liver, respiratory system, Skin, eyes) through prolonged or repeated exposure.
Aspiration hazard	:	Not classified
Viscosity, kinematic	:	No data available
Likely routes of exposure	:	Inhalation. Skin and eye contact.
Potential Adverse human health effects and symptoms	:	Toxic if swallowed. Fatal in contact with skin. Causes severe skin burns. Fatal if inhaled. Causes serious eye damage. Caution! Substance is absorbed through the skin.
Symptoms/effects after inhalation	:	Dry/sore throat. Coughing. Corrosion of the upper respiratory tract. Runny nose. Respiratory difficulties. FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible laryngeal spasm/oedema. Risk of lung edema.
Symptoms/effects after skin contact	:	Caustic burns/corrosion of the skin.
Symptoms/effects after eye contact	:	Corrosion of the eye tissue. Inflammation/damage of the eye tissue.
Symptoms/effects after ingestion	:	Nausea. Burns to the gastric/intestinal mucosa. Abdominal pain. Blood in vomit. Blood in stool. Shock. Disturbances of consciousness. FOLLOWING SYMPTOMS MAY APPEAR LATER: Change in urine output. Renal disease. Enlargement/disease of the liver. Change in the blood composition.
Chronic symptoms	:	Skin rash/inflammation. Affection of the nasal septum. Nosebleeding. Respiratory difficulties. Possible inflammation of the respiratory tract. Risk of pneumonia. Lung tissue affection/degeneration. Inflammation/damage of the eye tissue. Enlargement/affection of the liver.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	:	Dangerous for the environment.
Ecology - air	:	Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water	:	Very toxic to crustacea. Harmful to fishes. Severe water pollutant (surface water). Very toxic to algae. pH shift.

Chromium Trioxide, ACS (1333-82-0)	
LC50 fish 1	58.5 mg/l (96 h, Brachydanio rerio, Fresh water, Read-across)
EC50 Daphnia 1	0.063 mg/l (48 h, Daphnia magna, Fresh water, Read-across)

12.2. Persistence and degradability

Chromium Trioxide, ACS (1333-82-0)	
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

12.3. Bioaccumulative potential

Chromium Trioxide, ACS (1333-82-0)	
BCF fish 1	4.6 – 72 (Cyprinus carpio, Test duration: 6 weeks)
BCF fish 2	16 (Pisces)
BCF other aquatic organisms 1	192 (Mytilidae, Chrome)
BCF other aquatic organisms 2	125 (Ostreidae, Chrome)
Bioaccumulative potential	Not bioaccumulative.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste disposal recommendations	: Treat using the best available techniques before discharge into drains or the aquatic environment. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Remove to an authorized dump (Class I). Remove for physico-chemical/biological treatment.
Additional information	: Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description	: UN1463 Chromium trioxide, anhydrous, 5.1, II
UN-No.(DOT)	: UN1463
Proper Shipping Name (DOT)	: Chromium trioxide, anhydrous
Packing group (DOT)	: II - Medium Danger
Hazard labels (DOT)	: 5.1 - Oxidizer 6.1 - Poison 8 - Corrosive

Dangerous for the environment	: Yes
Marine pollutant	: Yes

DOT Packaging Non Bulk (49 CFR 173.xxx)	: 212
DOT Packaging Bulk (49 CFR 173.xxx)	: 242

DOT Special Provisions (49 CFR 172.102)	:	IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2). IP2 - When IBCs other than metal or rigid plastics IBCs are used, they must be offered for transportation in a closed freight container or a closed transport vehicle. IP4 - Flexible, fiberboard or wooden IBCs must be sift-proof and water-resistant or be fitted with a sift-proof and water-resistant liner. T3 - 2.65 178.274(d)(2) Normal............. 178.275(d)(2) TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	None
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	5 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	25 kg
DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	:	66 - Stow ‘‘separated from’’ flammable solids,90 - Stow ‘‘separated from’’ radioactive materials
Other information	:	No supplementary information available.

Transportation of Dangerous Goods

Transport document description	:	UN1463 CHROMIUM TRIOXIDE, ANHYDROUS, 5.1 (6.1;8), II
UN-No. (TDG)	:	UN1463
Proper Shipping Name (Transportation of Dangerous Goods)	:	CHROMIUM TRIOXIDE, ANHYDROUS
TDG Primary Hazard Classes	:	5.1 - Class 5.1 - Oxidizing Substances
Packing group	:	II - Medium Danger
TDG Subsidiary Classes	:	6.1;8
Explosive Limit and Limited Quantity Index	:	1 kg
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	:	5 kg

Transport by sea

Transport document description (IMDG)	:	UN 1463 chromium trioxide, anhydrous, 5.1 (6.1+8), II, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS
UN-No. (IMDG)	:	1463
Proper Shipping Name (IMDG)	:	chromium trioxide, anhydrous
Class (IMDG)	:	5.1 - Oxidizing substances
Packing group (IMDG)	:	II - substances presenting medium danger
Subsidiary risks (IMDG)	:	6.1 - Toxic substances 8 - Corrosive substances
EmS-No. (1)	:	F-A
EmS-No. (2)	:	S-Q
Marine pollutant	:	Yes

Air transport

Transport document description (IATA)	: UN 1463 Chromium trioxide, anhydrous, 5.1, II, ENVIRONMENTALLY HAZARDOUS
UN-No. (IATA)	: 1463
Proper Shipping Name (IATA)	: Chromium trioxide, anhydrous
Class (IATA)	: 5.1 - Oxidizing Substances
Packing group (IATA)	: II - Medium Danger
Subsidiary hazards (IATA)	: 6.1 - Toxic substances,8 - Corrosive substances

SECTION 15: Regulatory information

15.1. US Federal regulations

Chromium Trioxide, ACS (1333-82-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
EPA TSCA Regulatory Flag	R - R - indicates a substance that is the subject of a TSCA section 6 risk management rule.
RQ (Reportable quantity, section 304 of EPA's List of Lists)	10 lb
SARA Section 311/312 Hazard Classes	Physical hazard - Oxidizer (liquid, solid or gas) Health hazard - Acute toxicity (any route of exposure) Health hazard - Carcinogenicity Health hazard - Respiratory or skin sensitization Health hazard - Germ cell mutagenicity Health hazard - Reproductive toxicity Health hazard - Serious eye damage or eye irritation Health hazard - Skin corrosion or Irritation Health hazard - Specific target organ toxicity (single or repeated exposure)

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Chromium Trioxide, ACS	CAS-No. 1333-82-0	100%

15.2. International regulations

CANADA
No additional information available

EU-Regulations
No additional information available

National regulations
No additional information available

15.3. US State regulations

Chromium Trioxide, ACS (1333-82-0)	
U.S. - California - Proposition 65 - Carcinogens List	Yes
U.S. - California - Proposition 65 - Developmental Toxicity	Yes
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	Yes
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	Yes
No significant risk level (NSRL)	0.001 µg/day - Inhalation

⚠ **WARNING:** This product can expose you to Chromium Trioxide, ACS, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 01/24/2020

Full text of H-phrases: see section 16:

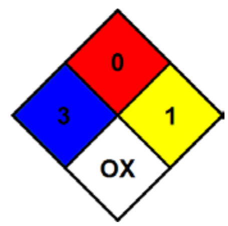
H271	May cause fire or explosion; strong oxidizer
H301	Toxic if swallowed
H310	Fatal in contact with skin
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H330	Fatal if inhaled
H334	May cause an allergy or asthma symptoms or breathing difficulties if inhaled
H340	May cause genetic defects
H350	May cause cancer
H361	Suspected of damaging fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.

NFPA specific hazard : OX - Materials that posses oxidizing properties.



Hazard Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Personal protection : J

J - Splash goggles, Gloves, Synthetic apron, Dust & vapor respirator

SDS US LabChem

Information in this SDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and LabChem Inc assumes no liability resulting from the use of this SDS. The user must determine suitability of this information for his application.

Material Safety Data Sheet
Chromium(VI) oxide

ACC# 95984

Section 1 - Chemical Product and Company Identification

MSDS Name: Chromium(VI) oxide
Catalog Numbers: AC196610000, AC196610010, AC196610250, AC196612500, AC214100000, AC214100010, AC214100050, AC214101000, AC405230000, AC405230025, 40523-5000, A100-100, A100-212, A100-500, A98-212, A98-500, NC9210244
Synonyms: Chromic acid; Chromic anhydride; Chromium(VI) oxide; Chromium trioxide.
Company Identification:
Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
1333-82-0	Chromium trioxide	>98	215-607-8

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: dark red to purple solid.
Danger! Toxic if swallowed, inhaled or absorbed through the skin. Strong oxidizer. Contact with other material may cause a fire. Causes burns by all exposure routes. May cause allergic respiratory and skin reaction. Harmful if swallowed. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Cancer hazard. Possible risk of impaired fertility. May cause heritable genetic damage.
Target Organs: Blood, kidneys, liver, lungs, respiratory system, gastrointestinal system, eyes, skin, mucous membranes.

Potential Health Effects
Eye: Causes severe eye burns. May cause irreversible eye injury. Causes redness and pain. May cause permanent corneal opacification.
Skin: Harmful if absorbed through the skin. Causes skin burns. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. May cause deep, penetrating ulcers of the skin. Causes redness and pain. Chronic exposure to water insoluble hexavalent chromium compounds has been shown to be associated with lung cancer and gastrointestinal tract tumors. Substance is readily absorbed through the skin.
Ingestion: Harmful if swallowed. May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause liver and kidney damage. Exposure may cause anemia and other blood abnormalities. May cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). May cause systemic effects.
Inhalation: May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. May cause asthmatic attacks due to allergic

sensitization of the respiratory tract. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Prolonged exposure to dusts, vapors, or mists may result in the perforation of the nasal septum. May cause systemic effects.
Chronic: Prolonged or repeated inhalation may cause nosebleeds, nasal congestion, erosion of the teeth, perforation of the nasal septum, chest pain and bronchitis. Prolonged or repeated eye contact may cause conjunctivitis. Prolonged or repeated skin contact may cause sensitization dermatitis and possible destruction and/or ulceration. Chronic ingestion may cause effects similar to those of acute ingestion. May cause liver and kidney damage. Chronic exposure to water insoluble hexavalent chromium compounds has been shown to be associated with lung cancer and gastrointestinal tract tumors. Adverse reproductive effects have been reported in animals. Possible risk of harm to the unborn child. Confirmed Human Carcinogen. May impair fertility.

Section 4 - First Aid Measures

Eyes: Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).
Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Strong oxidizer. Contact with other material may cause fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. Containers may explode in the heat of a fire. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.
Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire. Contact professional fire-fighters immediately. Cool containers with flooding quantities of water until well after fire is out. May require flooding with water in order to eliminate hazardous reactions since the materials generate their own oxygen.
Flash Point: 250 deg C (482.00 deg F)
Autoignition Temperature: None available.
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 3; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up or absorb material, then place into a suitable clean, dry, closed container for disposal. Avoid generating dusty conditions. Provide ventilation. Do not use combustible materials such as paper towels to clean up spill.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Do not breathe dust, mist, or vapor. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Avoid contact with clothing and other combustible materials. Do not ingest or inhale. Use with adequate ventilation. Discard contaminated shoes.
Storage: Do not store near combustible materials. Keep container closed when not in use. Store in a cool, dry, well-ventilated location. Separate from combustible materials, halogens, sulfides, metals. See also NFPA 430, Code for the Storage of Liquid and Solid Oxidizers.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Chromium trioxide	0.05 mg/m3 TWA (as Cr) (listed under Chromium (VI) compounds- water soluble).	0.001 mg/m3 TWA (as Cr) 15 mg/m3 IDLH (as Cr(VI))	5 æg/m3 TWA (listed under Chromium (VI) compounds).2.5 æg/m3 Action Level (as Cr.); 5 æg/m3 TWA (as Cr, Cancer hazard - See 29 CFR 1910.1026) (listed under Chromium (VI) compounds).

OSHA Vacated PELs: Chromium trioxide: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear a chemical apron. Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear a chemical apron. Wear appropriate protective gloves to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Appearance: dark red to purple
Odor: odorless
pH: <1.0 (50g/l aq. sol.)
Vapor Pressure: Not available.
Vapor Density: 3.4
Evaporation Rate: Neglible
Viscosity: No information
Boiling Point: 250 deg C
Freezing/Melting Point:196.1 deg C
Decomposition Temperature:250 deg C
Solubility: Soluble.
Specific Gravity/Density:2.7 (Water=1)
Molecular Formula:CrO_3
Molecular Weight:99.99

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Hygroscopic: absorbs moisture or water from the air.
Conditions to Avoid: Incompatible materials, dust generation, moisture, excess heat.
Incompatibilities with Other Materials: Metals, reducing agents, combustible materials, halogens, sulfides, pyridine, dimethyl formamide, acetic acid, acetic anhydride, acetone, diethyl ether, ethanol, methanol, camphor, glycerol, turpentine, organics, attacks metals in the presence of moisture, Aqueous solution is strongly acidic., Can ignite organic matter on contact., bases, alcohols, alkali metals, ammonia, chlorine trifluoride, finely powdered metals, diethyl formamide, phosphorus, hydrocarbons, ketones.
Hazardous Decomposition Products: Chromium fumes, possible trivalent chromium formation with liberated oxygen..
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 1333-82-0: GB6650000
LD50/LC50:
CAS# 1333-82-0:
Oral, mouse: LD50 = 127 mg/kg;
Oral, rat: LD50 = 80 mg/kg;
.
TDLO/TCLO-LOWEST PUBLISHED TOXIC DOSE/CONC. Human TCLo: ROUTE: Inhalation: DOSE: 110ug/m3.
Carcinogenicity:
CAS# 1333-82-0:

- **ACGIH:** A1 - Confirmed Human Carcinogen (listed as 'Chromium (VI) compounds- water soluble').
- **California:** carcinogen, initial date 2/27/87 (listed as Chromium (VI) compounds).
- **NTP:** Known carcinogen
- **IARC:** Group 1 carcinogen

Epidemiology: No data available.
Teratogenicity: No data available.
Reproductive Effects: Adverse reproductive effects have occurred in experimental animals.
Mutagenicity: See actual entry in RTECS for complete information.Mutagenic effects have occurred in experimental animals.Mutagenic effects have occurred in humans.
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Pseudomonas putida:

Section 13 - Disposal Considerations

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

RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	CHROMIUM TRIOXIDE, ANHYDROUS	CHROMIUM TRIOXIDE, ANHYDROUS
Hazard Class:	5.1	5.1(8)
UN Number:	UN1463	UN1463
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 1333-82-0 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
CAS# 1333-82-0: Section 6, 0.1 % de minimus concentration [see 40 CFR 749.68]
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 1333-82-0: immediate, delayed.
Section 313
This material contains Chromium trioxide (listed as Chromium (VI) compounds), >98%, (CAS# 1333-82-0) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
CAS# 1333-82-0 can be found on the following state right to know lists: New Jersey, Pennsylvania, Minnesota, (listed as Chromium (VI) compounds- water soluble), Minnesota, (listed as Chromium (VI) compounds), Massachusetts.

California Prop 65
The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:
WARNING: This product contains Chromium trioxide, listed as `Chromium (VI) compounds', a chemical known to the state of California to cause cancer.
California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T+ O N

Risk Phrases:

R 22 Harmful if swallowed.
R 26 Very toxic by inhalation.
R 35 Causes severe burns.
R 42/43 May cause sensitization by inhalation and skin contact.
R 45 May cause cancer.
R 46 May cause heritable genetic damage.
R 9 Explosive when mixed with combustible material.
R 24/25 Toxic in contact with skin and if swallowed.
R 48/23 Toxic : danger of serious damage to health by prolonged exposure through inhalation.
R 62 Possible risk of impaired fertility.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 53 Avoid exposure - obtain special instructions before use.
S 60 This material and its container must be disposed of as hazardou s waste.

WGK (Water Danger/Protection)

CAS# 1333-82-0: 3

Canada - DSL/NDSL

CAS# 1333-82-0 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of C, D1B, D2A, E.

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

Canadian Ingredient Disclosure List

CAS# 1333-82-0 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 6/02/1998
Revision #12 Date: 2/18/2008

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
CARBON PITCH SOLID

Synonyms
CARBON PITCH; CARBON PITCH HARD PENCIL; CARBON PITCH PENCIL; DISTRESSED PITCH; ELECTRODE, AROMATIC, BINDER, TARGET,CORE, COAL TAR PITCH; HARD CARBON PITCH - PENCIL; MISCELLANEOUS PITCH - IMPORT; PITCH FINES; TARGET PITCH PENCIL

Chemical Family
polynuclear aromatic hydrocarbons

Product Use
process chemical. Component in the manufacture of electrodes and anodes for aluminum, metallurgic and electro-steel industries, activated carbon, carbon refractory blast furnace linings, and clay target manufacture.

Restrictions on Use
None known.

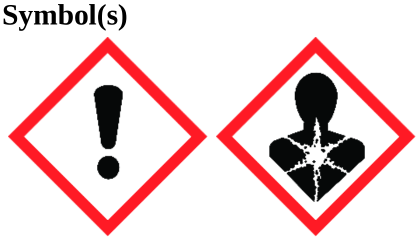
Details of the supplier of the safety data sheet
KOPPERS INC.
436 Seventh Avenue
Pittsburgh, PA 15219-1800
Mfg Contact: 412-227-2001 (SDS Requests: 866-852-5239)

CHEMTREC: 800-424-9300 (Outside USA: +1 703-527-3887)
Emergencies: (Medical in USA): 877-737-9047
Emergencies: (Medical Outside of USA): 651-632-9269
E-mail: naorgmsds@koppers.com

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Combustible Dust
Skin Sensitization - Category 1
Germ Cell Mutagenicity - Category 1B
Carcinogenicity - Category 1A
Reproductive Toxicity - Category 1B
Hazardous to the Aquatic Environment - Chronic - Category 4

GHS Label Elements

Symbol(s)


Signal Word
Danger

Hazard Statement(s)
May form combustible dust concentrations in air.
May cause an allergic skin reaction.

May cause genetic defects.
May cause cancer.
May damage fertility or the unborn child.
May cause long lasting harmful effects to aquatic life.

Precautionary Statement(s)

Prevention
Avoid breathing dust.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/protective clothing/eye protection/face protection.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid release to the environment.

Response
IF exposed or concerned: Get medical advice/attention.
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.

Storage
Store locked up.

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations.

Other Hazards
None known.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
65996-93-2	Coal tar pitches	100
-	The above listed complex substance contains the following constituents	-
50-32-8	Benzo[a]pyrene	1.05-1.67
206-44-0	Fluoranthene	0.37-1.59
189-64-0	Dibenzo(a,h)pyrene	0.12-1.49
53-70-3	Dibenzo(a,h)anthracene	1.06-1.39
192-97-2	Benzo(e)pyrene	0.75-1.36
191-24-2	Benzo(ghi)perylene	0.83-1.34
129-00-0	Pyrene	0.40-1.30
205-99-2	Benzo(b)fluoranthene	0.79-1.30
218-01-9	Chrysene	0.56-1.30

56-55-3	Benz[a]anthracene	0.48-1.11
120-12-7	Anthracene	0.04-0.77
207-08-9	Benzo(k)fluoranthene	0.46-0.75
205-82-3	Benzo(j)fluoranthene	0.39-0.66
238-84-6	Benzo(a)fluorene	0.07-0.49
243-17-4	Benzo[b]fluorene	0.06-0.41
189-55-9	Dibenzo(a,i)pyrene	0.11-0.35
85-01-8	Phenanthrene	0.05-0.31
192-65-4	Dibenzo(a,e)pyrene	0.16-0.28
193-39-5	Indeno(1,2,3-cd)pyrene	0.15-0.26
217-59-4	Triphenylene	0.09-0.20
83-32-9	Acenaphthene	0.00-0.18
132-64-9	Dibenzofuran	0.12-0.14
86-74-8	9H-Carbazole	0.00-0.13
86-73-7	Fluorene	0.00-0.06

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Aromatic hydrocarbons, polycyclic (130489-29-2).

Section 4 - FIRST AID MEASURES

Inhalation

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

Skin

Wash all affected skin areas with warm soapy water. Skin contact causes photosensitization which can last for 36-72 hours after exposure. Keep out of direct sunlight for the next two to three days to avoid sunburn to the photosensitized skin areas. Use a broad spectrum blockout cream to protect against UV alpha ray exposure. Get medical attention, if needed.

Eyes

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

Ingestion

Not a likely route of exposure. Do NOT induce vomiting. If a large amount is swallowed, get medical attention. Do not give anything by mouth to unconscious or convulsive person. If vomiting occurs, keep head lower than hips to help prevent aspiration.

Most Important Symptoms/Effects

Acute

allergic reactions

Delayed

allergic reactions, mutagenic effects, Reproductive Effects, lung cancer, bladder cancer, skin cancer, scrotal cancer

Indication of any immediate medical attention and special treatment needed

Treat symptomatically and supportively.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

regular dry chemical, carbon dioxide, regular foam, water spray, fog or mist

Unsuitable Extinguishing Media

Do not use high-pressure water streams.

Special Hazards Arising from the Chemical

Dust/air mixtures may ignite or explode. Minimum dust concentration required is 0.35 oz/ft3. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. During fire conditions, vapors and decomposition products may be released, forming toxic and/or flammable/explosive mixtures in air.

Hazardous Combustion Products

Oxides of carbon, oxides of nitrogen, oxides of sulfur, polynuclear aromatic hydrocarbons

Fire Fighting Measures

Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Use extinguishing agents appropriate for surrounding fire. Flood with fine water spray. Directly spraying water or foam onto hot burning product may cause frothing. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. When the solid material is heated (as in a fire) it will melt and begin to flow. The molten material may be chilled and solidified using a water fog or fine water spray.

Special Protective Equipment and Precautions for Firefighters

Wear full protective firefighting gear including self-contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8. Avoid release to the environment.

Methods and Materials for Containment and Cleaning Up

Stop leak if possible without personal risk. Shovel solidified material into containers for recycle if clean or disposal if contaminated. The solid or solidified spillage should be cleaned up as quickly as possible. Spilled material in a traffic area will break down with mechanical contact (e.g. vehicle tires) and become a wind borne dust. Solid material spillage may be wet down with a fine water spray to suppress dust during cleanup. If sweeping of a contaminated area is necessary, use a dust suppressant agent. Collect spill using a vacuum cleaner with a HEPA filter or wet and scoop up dry spills. Avoid sweeping spilled dry material. Eliminate ignition sources including sources of electrical, static or frictional sparks. Collect spilled material in appropriate container for disposal. In Canada, report releases to provincial authorities, municipal authorities, or both, as required. Due to the concentration of Benzo(a)pyrene and the CERCLA (40 CFR 302.4) reportable quantity of 1 pound, the release of 60 pounds (5.5

gallons) of this product requires National Response Center notification. See Section 13 for waste disposal information.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Avoid breathing dust. Avoid contact with eyes, skin and clothing. When using do not eat, drink or smoke. Wear protective gloves/clothing and eye/face protection. Wash exposed areas thoroughly with soap and water, or a waterless hand cleaner, after skin contact and before eating, drinking, using tobacco products, or restrooms. Use protective skin cream on exposed skin before and during work shift. To reduce sun sensitivity a sun-blocking lotion can also be applied prior to application of a protective cream. Contaminated clothing should be removed and laundered before reuse. Contaminated work clothing should not be allowed out of the workplace unless laundered or decontaminated. After working with the product use warm soapy water and a wash cloth to thoroughly wash all areas of skin that have been contacted with product. After washing, apply a broad spectrum UV blockout cream on exposed skin areas before going into sunlight. Keep out of strong sunlight for two to three days after being affected by the product. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions.

Conditions for Safe Storage, Including any Incompatibilities

Store locked up.
Store and handle in accordance with all current regulations and standards. Label all containers. Store in metal containers. Avoid use of plastic containers. Keep in a well-ventilated place. Keep away from heat, sparks and naked flames. Protect from physical damage. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30).

Incompatible Materials

oxidizing materials

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Coal tar pitches	**65996-93-2**
ACGIH:	0.2 mg/m3 TWA as benzene-soluble aerosol
OSHA (US):	0.2 mg/m3 TWA (benzene soluble fraction)

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

Coal tar pitches (65996-93-2)

Medium: urine Time: end of shift at end of workweek Parameter: 1-Hydroxypyrene with hydrolysis (nonquantitative)

Engineering Controls

Provide local exhaust or process enclosure ventilation system. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection

ANSI Z87.1-1989 approved safety glasses with side shields. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. At elevated temperatures: A face shield is recommended.

Skin Protection

Wear protective clothing to prevent contact. Wear long sleeved shirt or overalls fastened at wrists and neck, with long legged trousers with trouser legs worn outside over boot tops, boots, socks, and safety hat plus gloves. Use protective skin cream on exposed skin before and during work shift. Protective clothing must be changed when it shows signs of contamination. Remove and launder contaminated clothing separately from other laundry before reuse. When material is at an elevated temperature, wear appropriate heat resistant clothing.

Respiratory Protection

If the applicable TLVs and/or PELs are exceeded, use NIOSH-approved multipurpose air-purifying cartridge respirators, for organic vapors and P-100 particulate. Use a positive-pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are not known, or any other circumstance where air-purifying respirators may not provide adequate protection.

Glove Recommendations

Wear appropriate chemical resistant gloves. When material is at an elevated temperature, wear appropriate heat resistant gloves.

Protective Materials

protective skin creams, chemical resistant material, heat resistant material

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	black solid	**Physical State**	solid
Odor	none at room temperature	**Color**	black
Odor Threshold	Not available	**pH**	Not available
Melting Point	40 - 180 °C	**Boiling Point**	>240 °C
Boiling Point Range	Not available	**Freezing point**	Not available
Evaporation Rate	Not available	**Flammability (solid, gas)**	Not flammable
Autoignition Temperature	>399 °C	**Flash Point**	>470 °F
Lower Explosive Limit	Not available	**Decomposition temperature**	Not available
Upper Explosive Limit	Not available	**Vapor Pressure**	(Negligible)
Vapor Density (air=1)	>1	**Specific Gravity (water=1)**	>1.297
Water Solubility	(Insoluble, Almost)	**Partition coefficient: n-octanol/water**	Not available
Viscosity	Not available	**Kinematic viscosity**	Not available
Solubility (Other)	Not available	**Density**	Not available

Log KOW	5.98 (approximate)	**Physical Form**	solid at room temperature , changes from solid to liquid as temperature increases
Molecular Weight	Not available	**OSHA Flammability Category**	4

Other Information
None known.

Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.

Chemical Stability
Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions
Will not polymerize.

Conditions to Avoid
Avoid accumulation of airborne dusts. Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials. Contact with water at elevated temperatures may cause violent foaming or explosion. Keep out of water supplies and sewers.

Incompatible Materials
oxidizing materials

Hazardous decomposition products
oxides of carbon, oxides of nitrogen, oxides of sulfur, polynuclear aromatic hydrocarbons

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
lung cancer, bladder cancer

Skin Contact
sensitivity to sunlight, allergic reactions, Reproductive Effects, skin cancer, scrotal cancer

Eye Contact
sensitivity to sunlight

Ingestion
No information on significant adverse effects.

Acute and Chronic Toxicity

Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:

Coal tar pitches (65996-93-2)
Oral LD50 Rat 3300 mg/kg
Dermal LD50 Rat >5000 mg/kg (no deaths occurred)

Product Toxicity Data

Product Analysis LD/LC 50 Toxicity Values

Oral LD50:	Rat >15000 mg/kg LD50
Dermal LD50:	Rat >2000 mg/kg

Acute Toxicity Estimate
No data available.

Immediate Effects
allergic reactions.

Delayed Effects
allergic reactions, mutagenic effects, Reproductive Effects, lung cancer, bladder cancer, skin cancer, scrotal cancer

Irritation/Corrosivity Data
Erythema/eschar score: 0, Oedema score: 0

Respiratory Sensitization
No test data available.

Dermal Sensitization
Component data indicate the substance is sensitizing.

Component Carcinogenicity

Coal tar pitches	**65996-93-2**
ACGIH:	A1 - Confirmed Human Carcinogen
IARC:	Monograph 100F [2012] ; Supplement 7 [1987] ; Monograph 35 [1985] (Group 1 (carcinogenic to humans))
NTP:	Known Human Carcinogen
NIOSH:	potential occupational carcinogen

May cause cancer. NOAEL: 400 mg/kg oral-rat. An animal study may suggest an association between lung cancer and pulmonary deposition of particulate matter originating from coal tar pitches.

Germ Cell Mutagenicity
Available data characterizes this substance as mutagenic. May cause genetic defects.

Tumorigenic Data
No data available

Reproductive Toxicity
Available data characterizes this substance as a reproductive hazard. May cause harm to the unborn child. Possible risk of impaired fertility.

Specific Target Organ Toxicity - Single Exposure
No data available.

Specific Target Organ Toxicity - Repeated Exposure
No data available.

Aspiration hazard
No data available.

Medical Conditions Aggravated by Exposure
respiratory disorders, skin disorders

Additional Data
This product is coal tar pitch. Volume 35 of the IARC monograph states that there is sufficient evidence that coal tar pitches are carcinogenic in humans. IARC's conclusion is based upon studies suggesting an association between skin cancer and chronic occupational dermal exposure to coal tar pitches and upon other historical studies and anecdotal reports showing an association between dermal exposure to coal tar pitch and scrotal cancer in the absence of good hygiene practices. Epidemiological studies of aluminum reduction workers showed an excess risk of developing bladder cancer for workers with chronic inhalation overexposure to coal tar pitch volatiles in excess of the recommended permissible exposure level. Studies also suggest an association between lung cancer and chronic inhalation overexposure to coal tar pitch volatiles in excess of the recommended permissible exposure level. An animal study may suggest an association between lung cancer and pulmonary deposition of particulate matter originating from coal tar pitches.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity
May cause long-term adverse effects in the aquatic environment.

Component Analysis - Aquatic Toxicity
No LOLI ecotoxicity data are available for this product's components.

Fish Toxicity
Not considered toxic to fish. Not toxic at limit of water solubility.

Invertebrate Toxicity
HIGH-TEMP. COAL TAR PITCH: >100 mg/l 48 hours EC50 Daphnia magna. EL50 96 hours ~100 mg/l Daphnia. EL50 48 hours >100 mg/l Algae. EL50 72 hours >100 mg/l Daphnia. ~100 mg/l Daphnia - NOELR 21 days. ~10 mg/l Algae - NOELR 72 hours.

Algal Toxicity
HIGH-TEMP. COAL TAR PITCH: >8000 mg/l 72 hours EC50 Scenedesmus subspicatus.

Persistence and Degradability
This substance is not expected to biodegrade. Insoluble in water.

Bioaccumulative Potential
Not bioaccumulating due to solubility and chemical structure. This material is believed not to bioaccumulate. Highly insoluble in water.

Mobility
This substance is expected to be immobile in soil. Insoluble in water.

Other Toxicity
No data available.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose in accordance with all applicable regulations.

Component Waste Numbers
The U.S. EPA has not published waste numbers for this product's components.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. , (Contains:

BENZO(A)PYRENE , BENZO(B)FLUORANTHENE) RQ
Hazard Class: 9
UN/NA #: UN3077
Packing Group: III
Required Label(s): 9
Further information: This material contains reportable quantity (RQ) Hazardous Substances.

IATA Information:
Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. , (Contains: BENZO(A)PYRENE , BENZO(B)FLUORANTHENE) RQ
Hazard Class: 9
UN#: UN3077
Packing Group: III
Required Label(s): 9
Further information: Passenger & Cargo Aircraft - Ltd. Qty. - (Packing Instruction / Max. Net Qty. per Pkg.): Y956 / 30 kg G,Passenger Aircraft (Packing Instruction / Max. Net Qty. per Pkg.): 956 / 400 kgs,Cargo Aircraft (Packing Instruction / Max. Net Qty. per Pkg.): 956 / 400 kgs, ERG Code: 9L

TDG Information:
Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. , (Contains: BENZO(A)PYRENE , BENZO(B)FLUORANTHENE) RQ
Hazard Class: 9
UN#: UN3077
Packing Group: III
Required Label(s): 9

International Bulk Chemical Code

This material contains one or more of the following chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Coal tar pitches	**65996-93-2**
IBC Code:	Category X (molten)

Further information

STCC Code: 2899868; HAZ STCC Code: 4966997, ERG: 171 US DOT Reportable Quantities BENZO(A)PYRENE (50-32-8) 1 lbs RQ; 0.454 kg RQ BENZO(B)FLUORANTHENE (205-99-2) 1 lbs RQ; 0.454 kg RQ

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

Benzo[a]pyrene	**50-32-8**
SARA 313:	0.1 % Supplier notification limit
CERCLA:	1 lb final RQ ; 0.454 kg final RQ
Fluoranthene	**206-44-0**

SARA 313:	1 % Supplier notification limit
CERCLA:	100 lb final RQ ; 45.4 kg final RQ
Dibenzo(a,h)pyrene	**189-64-0**
SARA 313:	0.1 % Supplier notification limit
Dibenzo(a,h)anthracene	**53-70-3**
SARA 313:	0.1 % Supplier notification limit
CERCLA:	1 lb final RQ ; 0.454 kg final RQ
Benzo(ghi)perylene	**191-24-2**
SARA 313:	1 % Supplier notification limit
CERCLA:	5000 lb final RQ ; 2270 kg final RQ
Pyrene	**129-00-0**
SARA 302:	1000 lb lower TPQ ; 10000 lb upper TPQ
CERCLA:	5000 lb final RQ ; 2270 kg final RQ
SARA 304:	5000 lb EPCRA RQ
Benzo(b)fluoranthene	**205-99-2**
SARA 313:	0.1 % Supplier notification limit
CERCLA:	1 lb final RQ ; 0.454 kg final RQ
Chrysene	**218-01-9**
SARA 313:	1 % Supplier notification limit
CERCLA:	100 lb final RQ ; 45.4 kg final RQ
Benz[a]anthracene	**56-55-3**
SARA 313:	0.1 % Supplier notification limit
CERCLA:	10 lb final RQ ; 4.54 kg final RQ
Anthracene	**120-12-7**
SARA 313:	1 % de minimis concentration
CERCLA:	5000 lb final RQ ; 2270 kg final RQ
Benzo(k)fluoranthene	**207-08-9**

SARA 313:	0.1 % Supplier notification limit
CERCLA:	5000 lb final RQ ; 2270 kg final RQ
Benzo(j)fluoranthene	**205-82-3**
SARA 313:	0.1 % Supplier notification limit
Dibenzo(a,i)pyrene	**189-55-9**
SARA 313:	0.1 % Supplier notification limit
CERCLA:	10 lb final RQ ; 4.54 kg final RQ
Phenanthrene	**85-01-8**
SARA 313:	1 % de minimis concentration
CERCLA:	5000 lb final RQ ; 2270 kg final RQ
Dibenzo(a,e)pyrene	**192-65-4**
SARA 313:	0.1 % Supplier notification limit
Indeno(1,2,3-cd)pyrene	**193-39-5**
SARA 313:	0.1 % Supplier notification limit
CERCLA:	100 lb final RQ ; 45.4 kg final RQ
Acenaphthene	**83-32-9**
CERCLA:	100 lb final RQ ; 45.4 kg final RQ
Dibenzofuran	**132-64-9**
SARA 313:	1 % de minimis concentration
CERCLA:	100 lb final RQ ; 45.4 kg final RQ
Fluorene	**86-73-7**
CERCLA:	5000 lb final RQ ; 2270 kg final RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories

Combustible Dust; Carcinogenicity; Reproductive Toxicity; Respiratory/Skin Sensitization; Germ Cell Mutagenicity

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Coal tar pitches	**65996-93-2**	Yes	Yes	Yes	Yes	Yes

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)

WARNING

This product can expose you to chemicals including Benzo[a]pyrene , which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Canada Regulations

Canadian WHMIS Ingredient Disclosure List (IDL)

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

Coal tar pitches	**65996-93-2**
	0.1 %
Benzo[a]pyrene	**50-32-8**
	0.1 %
Fluoranthene	**206-44-0**
	1 %
Dibenzo(a,h)pyrene	**189-64-0**
	0.1 %
Dibenzo(a,h)anthracene	**53-70-3**
	0.1 %
Pyrene	**129-00-0**
	1 %
Benzo(b)fluoranthene	**205-99-2**
	0.1 %
Chrysene	**218-01-9**
	0.1 %
Benz[a]anthracene	**56-55-3**
	0.1 %
Dibenzo(a,i)pyrene	**189-55-9**

	0.1 %
Indeno(1,2,3-cd)pyrene	**193-39-5**
	0.1 %

WHMIS Classification

D2A , D2B

Component Analysis - Inventory

Coal tar pitches (65996-93-2)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes

Benzo[a]pyrene (50-32-8)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	DSL	EIN	No	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes

Fluoranthene (206-44-0)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	NSL	EIN	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	Yes	Yes

Dibenzo(a,h)pyrene (189-64-0)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
No	No	EIN	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes

Dibenzo(a,h)anthracene (53-70-3)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	NSL	EIN	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes

Benzo(ghi)perylene (191-24-2)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
No	No	EIN	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes

Pyrene (129-00-0)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes

Benzo(b)fluoranthene (205-99-2)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
No	No	EIN	No	No	No	No	No	No	No	No	Yes	No	Yes	Yes

Chrysene (218-01-9)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	DSL	EIN	Yes	No	No	No	Yes	No	No	No	Yes	No	Yes	Yes

Benz[a]anthracene (56-55-3)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	NSL	EIN	No	No	No	No	No	No	No	Yes	Yes	No	Yes	Yes

Anthracene (120-12-7)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes

Benzo(k)fluoranthene (207-08-9)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
No	No	EIN	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes

Benzo(j)fluoranthene (205-82-3)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
No	No	EIN	No	No	No	No	No	No	No	No	No	No	Yes	Yes

Dibenzo(a,i)pyrene (189-55-9)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
No	No	EIN	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes

Phenanthrene (85-01-8)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI -	KR KECI -	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)

							Annex 1	Annex 2						
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes

Dibenzo(a,e)pyrene (192-65-4)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
No	No	EIN	No	No	No	No	No	No	No	No	No	No	Yes	No

Indeno(1,2,3-cd)pyrene (193-39-5)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	NSL	EIN	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes

Acenaphthene (83-32-9)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes

Dibenzofuran (132-64-9)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	DSL	EIN	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes

Fluorene (86-73-7)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	DSL	EIN	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes

U.S. Inventory (TSCA)
Listed on inventory.

Section 16 - OTHER INFORMATION

NFPA Ratings
Health: 2 Fire: 1 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes
Updated: 07/19/2018; MSDS SUMMARY OF CHANGES: SECTION 15 - CA Proposition 65

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC – European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; F - Background (for Venezuela Biological Exposure Indices); IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX – Mexico; Ne- Non-specific; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; Nq - Non-quantitative; NSL – Non-Domestic Substance List (Canada); NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL- Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; Sc - Semi-quantitative; STEL - Short-term Exposure Limit; TCCA – Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW – Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN (Draft) - Vietnam (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada).

Other Information

Disclaimer:

The information set forth in this Safety Data Sheet does not purport to be all-inclusive and should be used only as a guide. While the information and recommendations set forth herein are believed to be accurate, the company makes no warranty regarding such information and recommendations and disclaims all liability from reliance thereon.

CITGO TRANSGARD® Tractor Hydraulic Fluid, Red

Material Safety Data Sheet

CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210

MSDS No. 633308001

Revision Date 8/13/2007

IMPORTANT: This MSDS is prepared in accordance with 29 CFR 1910.1200. Read this MSDS before transporting, handling, storing or disposing of this product and forward this information to employees, customers and users of this product.

Hazard Rankings

	HMIS	NFPA
Health Hazard	1	1
Fire Hazard	1	1
Reactivity	0	0

*** = Chronic Health Hazard**

Emergency Overview

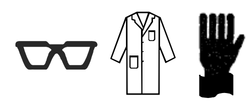
Physical State Liquid.

Color Red. **Odor** Mild petroleum odor

WARNING:
Oil injected into the skin from high-pressure leaks can cause severe injury.
Most damage occurs during the first few hours.
Seek medical attention immediately.
Surgical removal of oil may be necessary.
Spills may create a slipping hazard.

Protective Equipment

Minimum Recommended
See Section 8 for Details



SECTION 1. PRODUCT IDENTIFICATION

Trade Name	CITGO TRANSGARD® Tractor Hydraulic Fluid, Red	**Technical Contact**	(800) 248-4684
Product Number	633308001	**Medical Emergency**	(832) 486-4700
CAS Number	Mixture.	**CHEMTREC Emergency (United States Only)**	(800) 424-9300
Product Family	Hydraulic oil		
Synonyms	Hydraulic oil; Tractor hydraulic fluid; CITGO® Material Code: 633308001		

SECTION 2. COMPOSITION

Component Name(s)	CAS Registry No.	Concentration (%)
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	70 - 90
Proprietary Ingredients	Proprietary Mixture	<10
Highly-refined petroleum lubricant oils	Mixture	<10
Calcium sulfonates	Proprietary Mixture	<2
Phosphorodithioic acid, O,O-di-C1-14-alkyl esters, zinc salts	68649-42-3	<1

SECTION 3. HAZARDS IDENTIFICATION

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact.

Signs and Symptoms of Acute Exposure

 Continued on Next Page

Inhalation At elevated temperatures or in enclosed spaces, product mist or vapors may irritate the mucous membranes of the nose, the throat, bronchi, and lungs.

Eye Contact This product can cause transient mild eye irritation with short-term contact with liquid sprays or mists. Symptoms include stinging, watering, redness, and swelling.

Skin Contact This material can cause mild skin irritation from prolonged or repeated skin contact. Injection under the skin can cause inflammation and swelling. Injection of pressurized hydrocarbons can cause severe, permanent tissue damage. Initial symptoms may be minor. Injection of petroleum hydrocarbons requires immediate medical attention.

Ingestion If swallowed, large volumes of material can cause generalized depression, headache, drowsiness, nausea, vomiting and diarrhea. Smaller doses can cause a laxative effect. If aspirated into the lungs, liquid can cause lung damage.

Chronic Health Effects Summary This product contains a petroleum-based mineral oil. Prolonged or repeated skin contact can cause mild irritation and inflammation characterized by drying, cracking, (dermatitis) or oil acne. Repeated or prolonged inhalation of petroleum-based mineral oil mists at concentrations above applicable workplace exposure levels can cause respiratory irritation or other pulmonary effects.

Conditions Aggravated by Exposure Disorders of the following organs or organ systems that may be aggravated by significant exposure to this material or its components include: Skin

Target Organs May cause damage to the following organs: skin.

Carcinogenic Potential This product is not known to contain any components at concentrations above 0.1% which are considered carcinogenic by OSHA, IARC or NTP.

OSHA Hazard Classification is indicated by an "X" in the box adjacent to the hazard title. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA Health Hazard Classification				OSHA Physical Hazard Classification					
Irritant		Sensitizer		Combustible		Explosive		Pyrophoric	
Toxic		Highly Toxic		Flammable		Oxidizer		Water-reactive	
Corrosive		Carcinogenic		Compressed Gas		Organic Peroxide		Unstable	

SECTION 4. FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

Inhalation Move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately. Keep the affected individual warm and at rest.

Eye Contact Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water while occasionally lifting and lowering eyelids. Seek medical attention if excessive tearing, redness, or pain persists.

Skin Contact If burned by hot material, cool skin by quenching with large amounts of cool water. For contact with product at ambient temperatures, remove contaminated shoes and clothing. Wipe off excess material. Wash exposed skin with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists. Thoroughly clean contaminated clothing before reuse. Clean or discard contaminated leather goods. If material is injected under the skin, seek medical attention immediately.

Ingestion Do not induce vomiting unless directed to by a physician. Do not give anything to drink unless directed to by a physician. Never give anything by mouth to a person who is not fully conscious. Seek medical attention immediately.

Notes to Physician SKIN: In the event of injection in underlying tissue, immediate treatment should include extensive incision, debridement and saline irrigation. Inadequate treatment can result in ischemia and gangrene. Early symptoms may be minimal.

INGESTION: The viscosity range of the product(s) represented by this MSDS is greater than 100 SUS at 100°F. There is a low risk of aspiration upon ingestion Careful gastric lavage or emesis may be considered to evacuate large quantities of material.

SECTION 5. FIRE FIGHTING MEASURES

NFPA Flammability Classification NFPA Class-IIIB combustible material.

Flash Point Open cup: >150°C (>302°F) (Estimated).

Lower Flammable Limit No data. **Upper Flammable Limit** No data.

Autoignition Temperature Not available.

Hazardous Combustion Products Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons and oxides of sulfur, phosphorus, zinc and/or nitrogen.

Special Properties This material can burn but will not readily ignite. This material will release vapors when heated above the flash point temperature that can ignite when exposed to a source of ignition. In enclosed spaces, heated vapor can ignite with explosive force. Mists or sprays may burn at temperatures below the flash point.

Extinguishing Media Use dry chemical, foam, carbon dioxide or water fog. Water or foam may cause frothing. Carbon dioxide and inert gas can displace oxygen. Use caution when applying carbon dioxide or inert gas in confined spaces.

Protection of Fire Fighters Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

Do not touch damaged containers or spilled material unless wearing appropriate protective equipment. Slipping hazard; do not walk through spilled material. Stop leak if you can do so without risk. For small spills, absorb or cover with dry earth, sand, or other inert non-combustible absorbent material and place into waste containers for later disposal. Contain large spills to maximize product recovery or disposal. Prevent entry into waterways or sewers. In urban area, cleanup spill as soon as possible. In natural environments, seek cleanup advice from specialists to minimize physical habitat damage. This material will float on water. Absorbent pads and similar materials can be used. Comply with all laws and regulations.

SECTION 7. HANDLING AND STORAGE

Handling Avoid contamination and extreme temperatures to minimize product degradation. Empty containers may contain product residues that can ignite with explosive force. Do not pressurize, cut, weld, braze solder, drill, grind or expose containers to flames, sparks, heat or other potential ignition sources. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

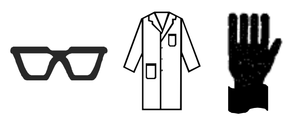
 Continued on Next Page

Storage
Keep container closed. Store in a cool, dry, well-ventilated area. Do not store with strong oxidizing agents. Do not store at elevated temperatures. Avoid storing product in direct sunlight for extended periods of time. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers or waste residues of this product.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of mists and/or vapors below the recommended exposure limits (see below). An eye wash station and safety shower should be located near the work-station.

Personal Protective Equipment
Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.



Eye Protection
Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Wear goggles if splashing or spraying is anticipated. Wear goggles and face shield if material is heated above 125°F (51°C). Have suitable eye wash water available.

Hand Protection
None required for incidental contact. Use gloves constructed of chemical resistant materials such as heavy nitrile rubber if frequent or prolonged contact is expected. Use heat-protective gloves when handling product at elevated temperatures.

Body Protection
Use clean protective clothing if splashing or spraying conditions are present. Protective clothing may include long-sleeve outer garment, apron, or lab coat. If significant contact occurs, remove oil-contaminated clothing as soon as possible and promptly shower. Launder contaminated clothing before reuse or discard. Wear heat protective boots and protective clothing when handling material at elevated temperatures.

Respiratory Protection
The need for respiratory protection is not anticipated under normal use conditions and with adequate ventilation. If elevated airborne concentrations above applicable workplace exposure levels are anticipated, a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter should be used. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).

General Comments
Use good personal hygiene practices. Wash hands and other exposed skin areas with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities, or leaving work. DO NOT use gasoline, kerosene, solvents or harsh abrasives as skin cleaners. Since specific exposure standards/control limits have not been established for this product, the "Oil Mist, Mineral" exposure limits shown below are suggested as minimum control guidelines.

Occupational Exposure Guidelines

Substance	Applicable Workplace Exposure Levels
Oil Mist, Mineral	**ACGIH (United States).** TWA: 5 mg/m^3 STEL: 10 mg/m^3 **OSHA (United States).** TWA: 5 mg/m^3

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (TYPICAL)

Physical State	Liquid.	**Color**	Red.	**Odor**	Mild petroleum odor
Specific Gravity	0.87 (Water = 1)	**pH**	Not applicable	**Vapor Density**	>1 (Air = 1)
Boiling Range	Not available.			**Melting/Freezing Point**	Not available.
Vapor Pressure	<0.001 kPa (<0.01 mm Hg) (at 20°C)			**Volatility**	Negligible volatility.
Solubility in Water	Negligible solubility in cold water.			**Viscosity (cSt @ 40°C)**	57
Flash Point	Open cup: >150°C (>302°F) (Estimated).				
Additional Properties	Gravity, ºAPI (ASTM D287) = 31.4 @ 60º F Density = 7.19 Lbs/gal. Viscosity (ASTM D2161) = AP 260 SUS @ 100º F				

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability Stable. **Hazardous Polymerization** Not expected to occur.

Conditions to Avoid Keep away from extreme heat, strong acids and strong oxidizing conditions.

Materials Incompatibility Strong oxidizers.

Hazardous Decomposition Products No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.

SECTION 11. TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

Toxicity Data

Distillates (petroleum), hydrotreated heavy paraffinic

ORAL (LD50): Acute: >5000 mg/kg [Rat].
DERMAL (LD50): Acute: >2000 mg/kg [Rabbit].

Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects. In long term studies (up to two years) no carcinogenic effects have been reported in any animal species tested.

Hydraulic oil

Repeated or prolonged skin contact with certain hydraulic oils can cause mild skin irritation characterized by drying, cracking (dermatitis) or oil acne. Injection under the skin, in muscle or into the blood stream can cause irritation, inflammation, swelling, fever, and systemic effects, including mild central nervous system depression. Injection of pressurized hydrocarbons can cause severe, permanent tissue damage.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Analysis for ecological effects has not been conducted on this product. However, if spilled, this product and any contaminated soil or water may be harmful to human, animal, and aquatic life. Also, the coating action associated with petroleum and petroleum products can be harmful or fatal to aquatic life and waterfowl.

Environmental Fate

An environmental fate analysis is not available for this specific product. Plants and animals may experience harmful or fatal effects when coated with petroleum products. Petroleum-based (mineral) lubricating oils normally will float on water. In stagnant or slow-flowing waterways, an oil layer can cover a large surface area. As a result, this oil layer might limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway may be sufficient to cause a fish kill or create an anaerobic environment.

SECTION 13. DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.

Conditions of use may cause this material to become a "hazardous waste", as defined by federal or state regulations. It is the responsibility of the user to determine if the material is a "hazardous waste" at the time of disposal. Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR 260 through 40 CFR 271). State and/or local regulations may be more restrictive. Contact your regional US EPA office for guidance concerning case specific disposal issues. Empty drums and pails retain residue. DO NOT pressurize, cut, weld, braze, solder, drill, grind, or expose this product's empty container to heat, flame, or other ignition sources. DO NOT attempt to clean it. Empty drums and pails should be drained completely, properly bunged or sealed, and promptly sent to a reconditioner.

SECTION 14. TRANSPORT INFORMATION

The shipping description below may not represent requirements for all modes of transportation, shipping methods or locations outside of the United States.

US DOT Status Not regulated by the U.S. Department of Transportation as a hazardous material.

Proper Shipping Name Not regulated.

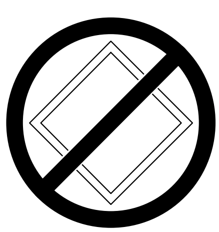
Hazard Class Not regulated.

Packing Group Not applicable.

UN/NA Number Not regulated.

Reportable Quantity A Reportable Quantity (RQ) has not been established for this material.

Placard(s)



Emergency Response Guide No. Not applicable.

MARPOL III Status Not a DOT "Marine Pollutant" per 49 CFR 171.8.

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SECTION 15. REGULATORY INFORMATION

TSCA Inventory	This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.
SARA 302/304 Emergency Planning and Notification	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.
SARA 311/312 Hazard Identification	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories: No SARA 311/312 hazard categories identified.
SARA 313 Toxic Chemical Notification and Release Reporting	This product contains the following components in concentrations above *de minimis* levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA: No components were identified.
CERCLA	The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. Chemical substances present in this product or refinery stream that may be subject to this statute are: Zinc and zinc compounds, Concentration: <1%
Clean Water Act (CWA)	This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.
California Proposition 65	This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5): Ethylbenzene: <0.002%
New Jersey Right-to-Know Label	Petroleum Oil (Hydraulic Oil)
Additional Remarks	No additional regulatory remarks.

SECTION 16. OTHER INFORMATION

Refer to the top of Page 1 for the HMIS and NFPA Hazard Ratings for this product.

REVISION INFORMATION

Version Number	2.00
Revision Date	8/13/2007

ABBREVIATIONS

AP: Approximately EQ: Equal >: Greater Than <: Less Than NA: Not Applicable ND: No Data NE: Not Establishe

ACGIH: American Conference of Governmental Industrial Hygienists

AIHA: American Industrial Hygiene Associatior

IARC: International Agency for Research on Cancer

NTP: National Toxicology Program

NIOSH: National Institute of Occupational Safety and Health

OSHA: Occupational Safety and Health Administration

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NPCA: National Paint and Coating Manufacturers Association
NFPA: National Fire Protection Association
HMIS: Hazardous Materials Information System
EPA: US Environmental Protection Agency

DISCLAIMER OF LIABILITY

THE INFORMATION IN THIS MSDS WAS OBTAINED FROM SOURCES WHICH WE BELIEVE ARE RELIABLE. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESSED OR IMPLIED REGARDING ITS CORRECTNESS. SOME INFORMATION PRESENTED AND CONCLUSIONS DRAWN HEREIN ARE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE SUBSTANCE ITSELF. THIS MSDS WAS PREPARED AND IS TO BE USED ONLY FOR THIS PRODUCT. IF THE PRODUCT IS USED AS A COMPONENT IN ANOTHER PRODUCT, THIS MSDS INFORMATION MAY NOT BE APPLICABLE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION OR PRODUCTS FOR THEIR PARTICULAR PURPOSE.

THE CONDITIONS OR METHODS OF HANDLING, STORAGE, USE, AND DISPOSAL OF THE PRODUCT ARE BEYOND OUR CONTROL AND MAY BE BEYOND OUR KNOWLEDGE. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.

***** END OF MSDS *****

Lead

SAFETY DATA SHEET

1 PRODUCT AND SUPPLIER IDENTIFICATION

Product Name: Lead - pellets, shot, sheet, foil, rod, wire, target

Formula: Pb

Supplier: ESPI Metals

1050 Benson Way

Ashland, OR 97520

Telephone: 800-638-2581

Fax: 541-488-8313

Email: sales@espimetals.com

Emergency: Infotrac 800-535-5053 (US) or 352-323-3500 (24 hour)

Recommended Uses: Scientific Research

2 HAZARDS IDENTIFICATION

GHS Classification (29 CFR 1910.1200): Acute toxicity, category 4, Carcinogenicity, category 2, Reproductive toxicity, category 2.

GHS Label Elements:

Signal Word: Warning

Hazard Statements: H302 Harmful if swallowed, H332 Harmful if inhaled, H351 Suspected of causing cancer, H361 Suspected of damaging fertility or the unborn child.

Precautionary Statements: P260 Do not breath dust/fume/gas/mist/vapors/spray, P264 Wash hands thoroughly after handling, P281 Use personal protective equipment as required, P301+P304+P312 IF SWALLOWED OR INHALED: Call a POISON CENTER or doctor/physician if you feel unwell.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient: Lead

CAS#: 7439-92-1

%: 100

EC#: 231-100-4

4 FIRST AID MEASURES

General Measures: Under normal handling and use, exposure to solid forms of this material present few health hazards. Subsequent operations such as grinding, melting or welding may produce hazardous dust or fumes which can be inhaled or come in contact with the skin or eyes. Emergency responders should take care to avoid secondary exposure to lead particulate. Wear appropriate protective equipment.

INHALATION: Remove to fresh air, keep warm and quiet, give oxygen if breathing is difficult. Seek immediate medical attention.

INGESTION: Rinse mouth with water. Do not induce vomiting. Seek immediate medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

SKIN: Remove contaminated clothing, wash affected area with soap and water. Seek medical attention. Wash contaminated clothing before reusing.

EYES: Flush eyes with lukewarm water, including under upper and lower eyelids, for at least 15 minutes. Seek medical attention.

Most Important Symptoms/Effects, Acute and Delayed: May cause irritation. See section 11 for more information.

Indication of Immediate Medical Attention and Special Treatment: No other information available.

5 FIREFIGHTING MEASURES

Extinguishing Media: Use suitable extinguishing agent for surrounding materials and type of fire.

Unsuitable Extinguishing Media: No information available.

Specific Hazards Arising from the Material: This product does not present fire or explosion hazards as shipped. Fine dust from processing is a weak to moderate fire hazard if allowed to accumulate and subjected to an ignition source. Under fire conditions toxic fumes of lead oxide may be released.

Special Protective Equipment and Precautions for Firefighters: Full face, self-contained breathing apparatus and full protective clothing when necessary.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Wear appropriate respiratory and protective equipment specified in section 8. Avoid creating dusts. Avoid breathing dust or fume. Isolate spill area and provide ventilation.

Methods and Materials for Containment and Cleaning Up: For larger pieces - pick up mechanically. For chips or dust - vacuum using a HEPA filter. Place in properly labeled closed containers. Avoid creating dusts. Do not use compressed air.

Environmental Precautions: Do not allow to enter drains or to be released to the environment.

7 HANDLING AND STORAGE

Precautions for Safe Handling: Handle in a well-ventilated area. Avoid creating dust. Avoid exposure to high temperature. Avoid breathing dust or fumes. Avoid contact with skin and eyes. Wash thoroughly before eating or smoking. See section 8 for information on personal protection equipment.

Conditions for Safe Storage, Including Any Incompatibilities: Store in a sealed container. Store in a cool, dry area. Protect from moisture. Do not store together with strong oxidizers or acids. See section 10 for more information on incompatible materials.

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: Lead

OSHA/PEL: 50 μg/m^3

ACGIH/TLV: 0.05 mg/m^3

Appropriate Engineering Controls: Whenever possible the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne dust and fume to meet established occupational exposure limits. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air. Clothing worn in areas of exposure to lead dust or fume should be restricted to the workplace and laundered regularly.

Individual Protection Measures, Such as Personal Protective Equipment:

Respiratory Protection: When potential exposures are above the occupational limits, approved respirators must be used.

Eye Protection: Safety glasses

Skin Protection: Wear impermeable gloves, protective work clothing as necessary.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Form: Solid in various forms

Color: Silvery metallic

Odor: Odorless

Odor Threshold: Not determined

pH: N/A

Melting Point: 327.5 ^{o}C

Boiling Point: 1740 ^{o}C

Flash Point: N/A

Evaporation Rate: N/A

Flammability: No data

Upper Flammable Limit: No data

Lower Flammable Limit: No data

Vapor Pressure: 1 mm Hg @ 973 ^{o}C

Vapor Density: N/A

Relative Density (Specific Gravity): 11.34 g/cc

Solubility in H_2O: Insoluble

Partition Coefficient (n-octanol/water): Not determined

Autoignition Temperature: No data

Decomposition Temperature: No data

Viscosity: N/A

10 STABILITY AND REACTIVITY

Reactivity: No data

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: High temperatures will generate toxic lead oxide fumes.

Conditions to Avoid: Avoid creating or accumulating fines or dusts. Avoid high temperatures.

Incompatible Materials: Strong acids, strong oxidizers, halogens and interhalogen compounds.

Hazardous Decomposition Products: Lead oxide fume.

Other: Freshly cut or cast lead surfaces tarnish rapidly due to the formation of an insoluble protective layer of basic lead carbonate.

11 TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, skin, eyes. Product as shipped does not present an inhalation hazard; however subsequent operations may create dusts or fumes which could be inhaled.

Symptoms of Exposure: Skin or eye contact with dust or fume may cause local irritation. Inhalation of dust or fumes may cause headache, nausea, vomiting, abdominal spasms, fatigue, sleep disturbances, weight loss, anemia, and pain in legs, arms, and joints. An acute short-term dose of lead could cause acute encephalopathy with seizures, coma, and death. However, short-term exposure of this magnitude is rare. Kidney damage, as well as anemia, can occur from acute exposure. Symptoms due to ingestion of lead dust or fume would be similar to those from inhalation. Other health effects such as metallic taste in the mouth and constipation or bloody diarrhea might also be expected to occur.

Acute and Chronic Effects: Lead accumulates in bone and body organs once it enters the body. Elimination from the body is slow. Initial and periodic medical examinations are advised for persons repeatedly exposed to levels above the exposure limits of lead dust or fumes. Once lead enters the body, it can affect a variety of organ systems, including the nervous system, kidneys, reproductive system, blood formation, and gastrointestinal system.

Acute Toxicity: No data

Carcinogenicity: **NTP**: R - Reasonably anticipated to be a carcinogen **IARC**: 2B - Possibly carcinogenic to humans

To the best of our knowledge the chemical, physical and toxicological characteristics of the substance are not fully known.

12 ECOLOGICAL INFORMATION

Ecotoxicity: No data

Persistence and Degradability: No data

Bioaccumulative Potential: No data

Mobility in Soil: No data

Other Adverse Effects: Do not allow material to be released to the environment. No further relevant information available.

13 DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Product: Dispose of in accordance with Federal, State and Local regulations.

Packaging: Dispose of in accordance with Federal, State and Local regulations.

14 TRANSPORT INFORMATION

DOT/ADR/IATA/IMDG Regulations: Not regulated

UN Number: N/A

UN Proper Shipping Name: N/A

Transport Hazard Class: N/A

Packing Group: N/A

Marine Pollutant: No

Special Precautions: N/A

15 REGULATORY INFORMATION

TSCA Listed: All components are listed.

Regulation (EC) No 1272/2008 (CLP): Acute toxicity, category 4, Carcinogenicity, category 2, Reproductive toxicity, category 2.

Canada WHMIS Classification (CPR, SOR/88-66): Class D, Division 2, Subdivision A - Very toxic material causing other toxic effects.

HMIS Ratings: **Health**: 1 **Flammability**: 0 **Physical**: 0

NFPA Ratings: **Health**: 1 **Flammability**: 0 **Reactivity**: 0

Chemical Safety Assessment: A chemical safety assessment has not been carried out.

16 OTHER INFORMATION

The above information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. ESPI Metals shall not be held liable for any damages resulting from handling or from contact with the above product.

Prepared by: ESPI Metals

Revised/Reviewed: September 2014

Monsanto
Material Safety Data

POLYCHLORINATED BIPHENYLS (PCBs)

Emergency Phone No.
(Call Collect)
314-694-1000

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: POLYCHLORINATED BIPHENYLS (PCBs)
Aroclor® Series 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262, 1268
Therminol® FR Series

MSDS Number: M00018515 Date: 12/95

Chemical Family:	Chlorinated Hydrocarbons
Chemical Name:	Polychlorinated biphenyls
Synonyms:	PCBs, Chlorodiphenyls, Chlorinated biphenyls

Trade Names/Common Names:

PYRANOL® and INERTEEN® are trade names for commonly used dielectric fluids that may have contained varying amounts of PCBs as well as other components including chlorinated benzenes.

ASKAREL is the generic name for a broad class of fire resistant synthetic chlorinated hydrocarbons and mixtures used as dielectric fluids that commonly contained about 30 - 70% PCBs. Some ASKAREL fluids contained 99% or greater PCBs and some contained no PCBs.

PYDRAUL® is the trade name for hydraulic fluids that, prior to 1972, may have contained varying amounts of PCBs and other components including phosphate esters.

The product names/trade names are representative of several commonly used Monsanto products (or products formulated with Monsanto products). Other trademarked PCB products were marketed by Monsanto and other manufacturers. PCBs were also manufactured and sold by several European and Japanese companies. Contact the manufacturer of the trademarked product, if not in this listing, to determine if the formulation contained PCBs.

In 1972, Monsanto restricted sales of PCBs to applications involving only closed electrical systems, (transformers and capacitors). In 1977, all manufacturing and sales were voluntarily terminated. In 1979, EPA restricted the manufacture, processing, use, and distribution of PCBs to specifically exempted and authorized activities.

MONSANTO COMPANY, 800 N. LINDBERGH BLVD., ST. LOUIS, MO 63167

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT
Call CHEMTREC - Day or Night - 1-800-424-9300 Toll free in the continental U.S., Hawaii, Puerto Rico, Canada, Alaska, or Virgin Islands. For calls originating elsewhere: 202-483-7616 (collect calls accepted)

For additional nonemergency information, call: 314-694-3344.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemically, commercial PCBs are defined as a series of technical mixtures, consisting of many isomers and compounds that vary from mobile, oily liquids to white crystalline solids and hard noncrystalline resins. Technical products vary in composition, in the degree of chlorination, and possibly according to batch.

The mixtures generally used contain an average of 3 atoms of chlorine per molecule (42% chlorine) to 5 atoms of chlorine per module (54% chlorine). They were used as components of dielectric fluids in transformers and capacitors. Prior to 1972, PCB applications included heat transfer media, hydraulic, and other industrial fluids, plasticizers, carbonless copy paper, paints, inks, and adhesives.

Component	CAS No.
chlorinated biphenyl	1336-36-3
Aroclor 1016	12674-11-2
Aroclor 1221	11104-28-2
Aroclor 1232	11141-16-5
Aroclor 1242	53469-21-9
Aroclor 1248	12672-29-6
Aroclor 1254	11097-69-1
Aroclor 1260	11096-82-5
Aroclor 1262	37324-23-5
Aroclor 1268	11100-14-4

There are also CAS Numbers for individual PCB congeners and for mixtures of Aroclor® products.

PCBs are identified as hazardous chemicals under criteria of the OSHA Hazard Communication Standard (29 CFR Part 1910.1200). PCBs have been listed in the International Agency for Research on Cancer (IARC) Monographs (1987)-Group 2A and in the National Toxicology Program (NTP) Annual Report on Carcinogens (Seventh).

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance and Odor: PCB mixtures range in form and color from clear to amber liquids to white crystalline solids. They have a mild, distinctive odor and are not volatile at room temperature. Refer to Section 9 for details.

WARNING!
CAUSES EYE IRRITATION
MAY CAUSE SKIN IRRITATION

PROCESSING AT ELEVATED TEMPERATURES MAY RELEASE VAPORS OR FUMES WHICH MAY CAUSE RESPIRATORY TRACT IRRITATION

POTENTIAL HEALTH EFFECTS

Likely Routes of Exposure: Skin contact and inhalation of heated vapors

Eye Contact: Causes moderate irritation based on worker experience.

Skin Contact: Prolonged or repeated contact may result in redness, dry skin and defatting based on human experience. A potential exists for developing chloracne. PCBs can be absorbed through intact skin.

Inhalation: Due to the low volatility of PCBs, exposure to this material in ambient conditions is not expected to produce adverse health effects. However, at elevated processing temperatures, PCBs may produce a vapor that may cause respiratory tract irritation if inhaled based on human experience.

Ingestion: No more than slightly toxic based on acute animal toxicity studies. Coughing, choking and shortness of breath may occur if liquid material is accidentally drawn into the lungs during swallowing or vomiting.

Other: Numerous epidemiological studies of humans, both occupationally exposed and nonworker environmentally exposed populations, have not demonstrated any causal relationship between PCB exposure and chronic human illnesses such as cancer or neurological or cardiovascular effects. PCBs at high dosage can cause skin symptoms; however, these subside upon removal of the exposure source.

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

IF IN EYES, immediately flush with plenty of water for at least 15 minutes. If easy to do, remove any contact lenses. Get medical attention. Remove material from skin and clothing.

IF ON SKIN, immediately flush the area with plenty of water. Wash skin gently with soap as soon as it is available. Get medical attention if irritation persists.

IF INHALED, remove person to fresh air. If breathing is difficult, get medical attention.

IF SWALLOWED, do NOT induce vomiting. Rinse mouth with water. Get medical attention. Contact a Poison Control Center. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

NOTE TO PHYSICIANS: Hot PCBs may cause thermal burn. If electrical equipment arcs between conductors, PCBs or other chlorinated hydrocarbon dielectric fluids may decompose to produce hydrochloric acid (HCl), a respiratory irritant. If large amounts are swallowed, gastric lavage may be considered.

5. FIRE FIGHTING MEASURES

Flash Point: 284 degrees F (140 degrees C) or higher depending on the chlorination level of the Aroclor product

Fire Point: 349 degrees F (176 degrees C) or higher depending on the chlorination level of the Aroclor product

NOTE: Refer to Section 9 for individual flash points and fire points.

Extinguishing Media: Extinguish fire using agent suitable for surrounding fire. Use dry chemical, foam, carbon dioxide or water spray. Water may be ineffective. Use water spray to keep fire-exposed containers or transformer cool.

PCBs are fire-resistant compounds. They may decompose to form CO, CO2, HCl, phenolics, aldehydes, and other toxic combustion products under severe conditions such as exposure to flame or hot surfaces.

Dielectric fluids having PCBs and chlorinated benzenes as components have been reported to produce polychlorinated dibenzo-p-dioxins (PCDDs) and furans (PCDFs) during fire situations involving electrical equipment. At temperatures in the range of 600-650 degrees C in the presence of excess oxygen, PCBs may form polychlorinated dibenzofurans (PCDFs). Laboratory studies under similar conditions have demonstrated that PCBs do not produce polychlorinated dibenzo-p-dioxins (PCDDs).

Federal regulations require all PCB transformers to be registered with fire response personnel.

If a PCB transformer is involved in a fire-related incident, the owner of the transformer may be required to report the incident. Consult and follow appropriate federal, state and local regulations.

Fire Fighting Equipment: Fire fighters and others exposed to products of combustion should wear self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

Cleanup and disposal of liquid PCBs and other PCB items are strictly regulated by the federal government. The regulations are found at 40 CFR Part 761. Consult these regulations as well as applicable state and local regulations prior to any cleanup or disposal of PCBs, PCB items, or PCB contaminated items.

If PCBs leak or are spilled, the following steps should be taken immediately:

All nonessential personnel should leave the leak or spill area.

The area should be adequately ventilated to prevent the accumulation of vapors.

The spill/leak should be contained. Loss to sewer systems, navigable waterways, and streams should be prevented. Spills/leaks should be removed promptly by means of absorptive material, such as sawdust, vermiculite, dry sand, clay, dirt or other similar materials, or trapped and removed by pumping or other suitable means (traps, drip-pans, trays, etc.).

Personnel entering the spill or leak area should be furnished with appropriate personal protective equipment and clothing as needed. Refer to Section 8 for personal protection equipment and clothing.

Personnel trained in emergency procedures and protected against attendant hazards should shut off sources of PCBs, clean up spills, control and repair leaks, and fight fires in PCB areas.

Refer to Section 13 for disposal information and Sections 14 and 15 for information regarding reportable quantity, and Section 7 for marking information.

7. HANDLING AND STORAGE

Care should be taken to prevent entry into the environment through spills, leakage, use vaporization, or disposal of liquid or containers. Avoid prolonged breathing of vapors or mists. Avoid contact with eyes or prolonged contact with skin. If skin contact occurs, remove by washing with soap and water. Following eye contact, flush with water. In case of spillage onto clothing, the clothing should be removed as soon as practical, skin washed, and clothing laundered. Comply with all federal, state, and local regulations.

Federal regulations under the Toxic Substances Control Act require PCBs, PCB items, storage areas, transformer vaults, and transport vehicles to be marked (check regulations, 40 CFR 761, for details).

CAUTION
CONTAINS
PCBs
(Polychlorinated Biphenyls)

A toxic environmental contaminant requiring special handling and disposal in accordance with U.S. Environmental Protection Agency Regulations 40CFR761 For Disposal Information contact the nearest U.S. E.P.A. Office.

In case of accident or spill, call toll free the U.S. Coast Guard National Response Center 800-424-8802

Also Contact ______________________

Tel. No. ______________________

CAUTION —
CONTAINS
PCBs
(Polychlorinated Biphenyls)
FOR PROPER DISPOSAL INFORMATION
CONTACT U.S. ENVIRONMENTAL
PROTECTION AGENCY

Storage: The storage of PCB items or equipment (those containing 50 ppm or greater PCBs) and PCB waste is strictly regulated by 40 CFR Part 761. The storage time is limited, the storage area must meet physical requirements, and the area must be labeled.

Avoid contact with eyes.
Wash thoroughly after handling.
Avoid breathing processing fumes or vapors.
Process using adequate ventilation.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection: Wear chemical splash goggles and have eye baths available where there is significant potential for eye contact.

Skin Protection: Wear appropriate protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine the appropriate type glove for a given application. Wear chemical goggles, face shield, and chemical resistant clothing such as a rubber apron when splashing is likely. Wash immediately if skin is contacted. Remove contaminated clothing promptly and launder before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash thoroughly after handling.

ATTENTION! Repeated or prolonged skin contact may cause chloracne in some people.

Respiratory Protection: Avoid breathing vapor, mist, or dust. Use NIOSH/MSHA approved equipment when airborne exposure limits are exceeded. Full facepiece equipment is recommended when airborne exposure limits are exceeded and, if used, replaces the need for face shield and/or chemical splash goggles. Consult respirator manufacturer to determine the type of equipment for a given application. The respirator use limitations specified by NIOSH/MSHA or the manufacturer must be observed. High airborne concentrations may require use of self-contained breathing apparatus or supplied air respirator. Respiratory protection programs must be in compliance with 29 CFR Part 1910.134.

ATTENTION! Repeated or prolonged inhalation may cause chloracne in some people.

Ventilation: Provide natural or mechanical ventilation to control exposure levels below airborne exposure limits (see below). If practical, use local mechanical exhaust ventilation at sources of vapor or mist, such as open process equipment.

Airborne Exposure Limits:

Product: Chlorodiphenyl (42% chlorine)

OSHA PEL: 1 mg/m^3 8-hour time-weighted average - Skin*
ACGIH TLV: 1 mg/m^3 8-hour time-weighted average - Skin*

Product: Chlorodiphenyl (54% chlorine)

OSHA PEL: 0.5 mg/m^3 8-hour time-weighted average - Skin*
ACGIH TLV: 0.5 mg/m^3 8-hour time-weighted average - Skin*

*For Skin notation see Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Government Industrial Hygienists, 1995-1996.

9. PHYSICAL AND CHEMICAL PROPERTIES

PROPERTIES OF SELECTED AROCLORS							
PROPERTY	1016	1221	1232	1242	1248	1254	1260
Color (APHA)	40	100	100	100	100	100	150
Physical state	mobile oil	mobile oil	mobile oil	mobile oil	mobile oil	viscous liquid	sticky resin
Stability	inert	inert	inert	inert	inert	inert	inert
Density (lb/gal 25°C)	11.40	9.85	10.55	11.50	12.04	12.82	13.50
Specific gravity x/15.5°C	1.36-1.37 x-25°	1.18-1.19 x-25°	1.27-1.28 x-25°	1.30-1.39 x-25°	1.40-1.41 x-65°	1.49-1.50 x-65°	1.55-1.56 x-90°
Distillation range (°C)	323-356	275-320	290-325	325-366	340-375	365-390	385-420
Acidity mg KOH/g, maximum	.010	.014	.014	.015	.010	.010	.014
Fire point (°C)	none to boiling point	176	238	none to boiling point	none to boiling point	none to boiling point	none to boiling point
Flash point (°C)	170	141-150	152-154	176-180	193-196	none	none
Vapor pressure (mm Hg @ 100°F)	NA	NA	0.005	0.001	0.00037	0.00006	NA
Viscosity (Saybolt Univ. Sec. @ 100°F) (centistokes)	71-81 13-16	38-41 3.6-4.6	44-51 5.5-7.7	82-92 16-19	185-240 42-52	1800-2500 390-540	— —

NA—*Not Available*

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

10. STABILITY AND REACTIVITY

Stability: PCBs are very stable, fire-resistant compounds.
Materials to Avoid: None
Hazardous Decomposition
Products: PCBs may decompose to form CO, CO_2, HCl, phenolics, aldehydes, and other toxic combustion products under severe conditions such as exposure to flame or hot surface.
Hazardous Polymerization: Does not occur.

11. TOXICOLOGICAL INFORMATION

Data from laboratory studies conducted by Monsanto and from the available scientific literature are summarized below.
Single exposure (acute) studies indicate:
Oral - Slightly Toxic (Rat LD50 - 8.65 g/kg for 42% chlorinated; 11.9 g/kg for 54% chlorinated)

The liquid products and their vapors are moderately irritating to eye tissues. Animal experiments of varying duration and at different air concentrations show that for similar exposure conditions, the 54% chlorinated material produces more liver injury than the 42% chlorinated material.

There are literature reports that PCBs can impair reproductive functions in monkeys. The National Cancer Institute (NCI) performed a study in 1977 using Aroclor 1254 with both sexes of rats. NCI stated that the PCB, Aroclor 1254, was not carcinogenic under the conditions of their bioassay. There is sufficient evidence in the scientific literature to conclude that Aroclor 1260 can cause liver cancer when fed to rodents at high doses. Similar experiments with less chlorinated PCB products have produced negative or equivocal results.

The consistent finding in animal studies is that PCBs produce liver injury following prolonged and repeated exposure by any route, if the exposure is of sufficient degree and duration. Liver injury is produced first, and by exposures that are less than those reported to cause cancer in rodents. Therefore, exposure by all routes should be kept sufficiently low to prevent liver injury.

Numerous epidemiological studies of humans, both occupationally exposed and nonworker environmentally exposed population, have not demonstrated any causal relationship between PCB exposure and chronic human illnesses such as cancer or neurological or cardiovascular effects. PCBs at high dosage can cause skin symptoms; however, these subside upon removal of the exposure source.

PCBs have been listed in the International Agency for Research on Cancer (IARC) Monographs (1987)-Group 2A and in the National Toxicology Program (NTP) Seventh Annual Report on Carcinogens.

12. ECOLOGICAL INFORMATION

Care should be taken to prevent entry of PCBs into the environment through spills, leakage, use, vaporization or disposal of liquid or solids. PCBs can accumulate in the environment and can adversely affect some animals and aquatic life. In general, PCBs have low solubility in water, are strongly bound to soils and sediments, and are slowly degraded by natural processes in the environment.

13. DISPOSAL CONSIDERATIONS

The disposal of PCB items or equipment (those containing 50 ppm or greater PCBs) and PCB wastes is strictly regulated by 40 CFR Part 761. For example, all wastes and residues containing PCBs (wiping cloths, absorbent material, used disposable protective gloves and clothing, etc.) should be collected, placed in proper containers, marked and disposed of in the manner prescribed by EPA regulations (40 CFR Part 761) and applicable state and local regulations.

14. TRANSPORT INFORMATION

The data provided in this section are for information only. Please apply the appropriate regulations to properly classify a shipment for transportation.

DOT Classification:	IF WEIGHT OF PCBs TO BE SHIPPED IS OVER ONE POUND, THE FOLLOWING CLASSIFICATION AND LABEL APPLY.	
DOT Label:	LIQUID:	Environmentally Hazardous Substance, liquid, n.o.s. (Contains PCB), 9, UN 3082, III
	SOLID:	Environmentally Hazardous Substance, solid, n.o.s. (Contains PCB), 9, UN 3077, III
DOT Label:	Class: 9	
DOT Reportable Quantity:	One Pound	
IMO Classification:	Polychlorinated Biphenyls, IMO Class 9, UN 2315, II IMO Page 9034, EMS 6.1-02	
IATA/ICAO Classification:	Polychlorinated Biphenyls, 9, UN2315, II	

15. REGULATORY INFORMATION

For regulatory purposes, under the Toxic Substances Control Act, the term "PCBs" refers to a chemical substance limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contain such a substance (40 CFR Part 761).

TSCA Inventory: not listed.

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370): Immediate, Delayed.
SARA Section 313 Toxic Chemical(s): Listed-1993 (De Minimis concentration 0.1%.)

Reportable Quantity (RQ) under DOT (49 CFR) and CERCLA Regulations: 1 lb. (polychlorinated biphenyls) PCBs.

Release of more than 1 (one) pound of PCBs to the environment requires notification to the National Response Center (800-424-8802 or 202-426-2675).

Various state and local regulations may require immediate reporting of PCB spills and may also define spill cleanup levels. Consult your attorney or appropriate regulatory officials for information relating to spill reporting and spill cleanup.

16. OTHER INFORMATION

Reason for revision: Conversion to the 16 section format. Supersedes MSDS dated 10/88.

Therminol®, Aroclor® and Pydraul® are registered trademarks of Monsanto Company
Pyranol® is a registered trademark of General Electric Company
Inerteen® is a registered trademark of Westinghouse Electric Corporation

FOR ADDITIONAL NONEMERGENCY INFORMATION, CONTACT:

Gary W. Mappes
Manager, Product & Environmental Safety

Robert G. Kaley, II
Director, Environmental Affairs

Monsanto Company
800 North Lindbergh Boulevard
St. Louis, MO 63167
(314) 694-3344

APPENDIX 11

RESPONSIBILITIES OF
OWNER AND REMEDIAL PARTY

Responsibilities

The responsibilities for implementing the Site Management Plan ("SMP") for the R. Freedman & Son site (the "Site"), number 401033, are divided between the Site owner and a Remedial Party, as defined below. The owner(s) is/are currently listed as:
Eastern Metal Recycling, LLC (the "owner").

Solely for the purposes of this document and based upon the facts related to a particular site and the remedial program being carried out, the term Remedial Party ("RP") refers to any of the following: certificate of completion holder, volunteer, applicant, responsible party, and, in the event the New York State Department of Environmental Conservation ("NYSDEC") is carrying out remediation or site management, the NYSDEC and/or an agent acting on its behalf. The RP is: Eastern Metal Recycling LLC, 143 Harding Avenue, Bellmawr, New Jersey.

Nothing on this page shall supersede the provisions of an Environmental Easement, Consent Order, Consent Decree, agreement, or other legally binding document that affects rights and obligations relating to the site.

Site Owner's Responsibilities:

1. The owner shall follow the provisions of the SMP as they relate to future use of the Site, Site construction and excavation at the Site.

2. In accordance with a periodic time frame determined by the NYSDEC, the owner shall periodically certify, in writing, that all Institutional Controls set forth in a(n) Environmental Easement remain in place and continue to be complied with. The owner shall provide a written certification to the RP, upon the RP's request, in order to allow the RP to include the certification in the site's Periodic Review Report (PRR) certification to the NYSDEC.

3. In the event the Site is delisted, the owner remains bound by the Environmental Easement and shall submit, upon request by the NYSDEC, a written certification that the Environmental Easement is still in place and has been complied with.

4. The owner shall grant access to the site to the RP and the NYSDEC and its agents for the purposes of performing activities required under the SMP and assuring compliance with the SMP.

5. The owner is responsible for assuring the security of the remedial components located on its property to the best of its ability. In the event that damage to the remedial components or vandalism is evident, the owner shall notify the site's RP and the NYSDEC in accordance with the timeframes indicated in Section 1.3-Notifications.

6. In the event some action or inaction by the owner adversely impacts the site, the owner must notify the site's RP and the NYSDEC in accordance with the time frame indicated in Section 1.3 - Notifications and (ii) coordinate the performance of necessary corrective actions with the RP.

7. The owner must notify the RP and the NYSDEC of any change in ownership of the site property (identifying the tax map numbers in any correspondence) and provide contact information for the new owner of the site property. 6 NYCRR Part contains notification requirements applicable to any construction or activity changes and changes in ownership. Among the notification requirements is the following: Sixty days prior written notification must be made to the NYSDEC. Notification is to be submitted to the NYSDEC Division of Environmental Remediation's Site Control Section. Notification requirements for a change in use are detailed in Section 2.4 of the SMP. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html.

8. The owner will maintain the ground cover, berm slope and vegetative cover, the Site fence, and periodic mowing on behalf of the RP. The RP remains ultimately responsible for maintaining the engineering controls.

9. When NYSDEC deems a vapor mitigation system is necessary, the owner shall operate the system, pay for the utilities for the system's operation, and report any maintenance issues to the RP and the NYSDEC until such a time NYSDEC/NYSDOH deem the vapor mitigation system is unwarranted.

10. In accordance with the tenant notification law, within 15 days of receipt, the owner must supply a copy of any vapor intrusion data, that is produced with respect to structures and that exceeds NYSDOH or OSHA guidelines on the site, whether produced by the NYSDEC, RP, or owner, to the tenants on the property. The owner must otherwise comply with the tenant and occupant notification provisions of Environmental Conservation Law Article 27, Title 24.

Remedial Party Responsibilities

1) The RP must follow the SMP provisions regarding any construction and/or excavation it undertakes at the site.

2) The RP shall report to the NYSDEC all activities required for remediation, operation, maintenance, monitoring, and reporting. Such reporting includes, but is not limited to, periodic review reports and certifications, electronic data deliverables, corrective action work plans and reports, and updated SMPs.

3) Before accessing the site property to undertake a specific activity, the RP shall provide the owner advance notification that shall include an explanation of the work expected to be completed. The RP shall provide to (i) the owner, upon the owner's request, (ii) the NYSDEC, and (iii) other entities, if required by the SMP, a copy of any data generated during the site visit and/or any final report produced.

4) If the NYSDEC determines that an update of the SMP is necessary, the RP shall update the SMP and obtain final approval from the NYSDEC. Within 5 business days after NYSDEC approval, the RP shall submit a copy of the approved SMP to the owner(s).

5) The RP shall notify the NYSDEC and the owner of any changes in RP ownership and/or control and of any changes in the party/entity responsible for the operation, maintenance, and monitoring of and reporting with respect to any remedial system (Engineering Controls). The RP shall provide contact information for the new party/entity. Such activity constitutes a Change of Use pursuant to 375-1.11(d) and requires 60-days prior notice to the NYSDEC. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html .

6) The RP shall notify the NYSDEC of any damage to or modification of the systems as required under Section 1.3 - Notifications] of the SMP.

7) The RP is responsible for the proper maintenance of any installed vapor intrusion mitigation systems associated with the site, as required. Maintenance and operation of the vapor intrusion mitigation systems, if and when installed will be added to the appropriate sections of the SMP and Appendix 12 (Operation , Monitoring and Maintenance Manual).

8) The RP is responsible for the proper monitoring and maintenance of any installed drinking water treatment system associated with the site, as required in the SMP or Appendix 12 (Operation , Monitoring and Maintenance Manual).

9) Prior to a change in use that impacts the remedial system or requirements and/or responsibilities for implementing the SMP, the RP shall submit to the NYSDEC for approval an amended SMP.

10) Any change in use, change in ownership, change in site classification (*e.g.*, delisting), reduction or expansion of remediation, and other significant changes related to the site may result in a change in responsibilities and, therefore, necessitate an update to the SMP and/or updated legal documents. The RP shall contact the Department to discuss the need to update such documents.

Change in RP ownership and/or control and/or site ownership does not affect the RP's obligations with respect to the site unless a legally binding document executed by the NYSDEC releases the RP of its obligations.

Future site owners and RPs and their successors and assigns are required to carry out the activities set forth above.

APPENDIX 12

RESERVED FOR O&M MANUAL (FOR EACH ACTIVE EC)

The O&M Manual provides protocols for the operation and maintenance of a remedial system. The procedures detailed in the O&M Manual do not replace the manufacturer's documents for specific remedial components but rather supplement such documents and provide for a concise, organized reference document for the remedial system and associated remedial components for operation and maintenance.

The O&M Manual will include all as-built drawings and catalog-cuts on all fixed and mobile equipment necessary to operate and maintain the remedial system including any pumps, blower, air strippers, etc. Catalog-cuts will include maintenance procedures, spare parts lists, and any special tool requirement as well as vendor/service contact/local dealer information, including address and telephone numbers.

The O&M Manual is to be revised on a periodic basis and must be kept up to date by the remedial party.

APPENDIX 13

RESERVED FOR REMEDIAL SYSTEM OPTIMIZATION PLAN

APPENDIX 14

PERMITS AND/OR PERMIT EQUIVALENT

APPENDIX 15

SITE SURVEY

RECORD TITLE DESCRIPTION – NYSDEC SITE No. 401033

FROM DELAWARE AND HUDSON RAILWAY COMPANY TO R. FREEDMAN & SON, INC., DATED JANUARY 30, 1973 AND RECORDED IN THE ALBANY COUNTY CLERK'S OFFICE ON APRIL 21, 1973 IN LIBER 2062 OF DEEDS, PAGE 1013.

ALL THAT CERTAIN PIECE OR PARCEL OF LAND, TOGETHER WITH THE RAILROAD TRACKS "F6A", "F6A1" AND "F6C" LOCATED THEREON, SITUATE, LYING AND BEING IN THE VILLAGE OF GREEN ISLAND, COUNTY OF ALBANY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS, TO WIT:

BEGINNING AT A POINT IN THE NORTHEASTERLY LINE OF TIBBITS AVENUE AT THE MOST SOUTHEASTERLY CORNER OF A PARCEL OF LAND CONVEYED BY THE DELAWARE AND HUDSON RAILROAD CORPORATION TO BENDIX AVIATION CORPORATION BY DEED DATED DECEMBER 18, 1951; THENCE NORTHEASTERLY ALONG THE EASTERLY LINE OF SAID LAND CONVEYED AS AFORESAID TWO HUNDRED THIRTY–NINE (239) FEET, OR THEREABOUTS, TO A CORNER; THENCE NORTHWESTERLY ON A CURVE TO THE LEFT AND ALONG THE NORTHERLY LINE OF LAND CONVEYED, AS AFORESAID, ONE HUNDRED SIXTY–SIX (166) FEET, OR THEREABOUTS, TO A CORNER IN THE NORTHWESTERLY LINE OF LAND OF THE PARTY OF THE FIRST PART; THENCE NORTHEASTERLY ALONG SAID LAST MENTIONED LINE EIGHT HUNDRED NINETY–SEVEN (897) FEET, OR THEREABOUTS, TO THE SOUTHWESTERLY CORNER OF A PARCEL OF LAND CONVEYED BY THE DELAWARE AND HUDSON RAILROAD CORPORATION TO AIRD ISLAND, INC. BY DEED DATED MAY 17, 1962; THENCE SOUTHEASTERLY ALONG THE SOUTHERLY LINE OF SAID LAST MENTIONED LAND AS CONVEYED FOUR HUNDRED FORTY–THREE (443) FEET, OR THEREABOUTS, TO A CORNER DISTANT NORTHWESTERLY NINE (9) FEET MEASURED AT RIGHT ANGLES FROM A POINT IN THE CENTER LINE OF TRACK "F7" OF THE RAILWAY OF THE PARTY OF THE FIRST PART; THENCE SOUTHWESTERLY PARALLEL WITH SAID CENTERLINE AND DISTANT NORTHWESTERLY NINE (9) FEET MEASURED AT RIGHT ANGLES THEREFROM NINE HUNDRED SEVENTY–THREE (973) FEET, OR THEREABOUTS, TO A POINT NORTHWESTERLY AND AT RIGHT ANGLES FROM THE POINT OF TANGENCY OF SAID LAST–MENTIONED TRACK; THENCE SOUTHWESTERLY TWO HUNDRED FIFTY–SIX (256) FEET, OR THEREABOUTS, TO A POINT IN SAID NORTHERLY LINE OF TIBBITS AVENUE SAID POINT BEING DISTANT NORTHWESTERLY NINE (9) FEET MEASURED AT RIGHT ANGLES FROM A POINT IN THE CENTER LINE OF THE MAIN LINE TRACK OF THE PARTY OF THE FIRST PART; AND THENCE NORTHWESTERLY ALONG SAID LINE OF TIBBITS AVENUE THREE HUNDRED TWENTY–THREE (323) FEET TO THE PLACE OF BEGINNING CONTAINING ELEVEN AND SEVENTY–SEVEN ONE HUNDREDTHS (11.77) ACRES, BE THE SAME MORE OR LESS.

BEING A PORTION OF THE PROPERTY ACQUIRED BY THE RENSSELAER AND SARATOGA RAIL ROAD COMPANY FROM SARAH B. TIBBITS ET AL BY DEED DATED DECEMBER 28, 1880 AND RECORDED IN THE OFFICE OF COUNTY CLERK FOR ALBANY COUNTY, NEW YORK, JULY 14, 1881, IN BOOK 334 OF DEEDS AT PAGE 276. THE PROPERTIES OF THE RENSSELAER AND SARATOGA RAIL ROAD COMPANY BECAME THE PROPERTY OF THE DELAWARE AND HUDSON RAILROAD CORPORATION BY OPERATION OF THE MERGER ON JANUARY 30, 1945 OF THE RENSSELAER AND SARATOGA RAIL ROAD COMPANY INTO THE DELAWARE AND HUDSON RAILROAD CORPORATION. THE PROPERTIES OF THE DELAWARE AND HUDSON RAILROAD CORPORATION WERE ACQUIRED BY THE PARTY OF THE FIRST PART BY DEED DATED JULY 1, 1968, AND RECORDED IN THE OFFICE AFORESAID JULY 15, 1968, IN BOOK 1946 OF DEEDS AT PAGE 393.

EXCEPTING AND EXPRESSLY RESERVING THEREFROM TO THE PARTY OF THE FIRST PART, ITS SUCCESSORS AND ASSIGNS, THE RAILROAD TRACKS DESIGNATED AS TRACK "F6" AND "SPUR TRACKS" ON SAID ATTACHED MAP, INCLUDING RAILS, TIES AND APPURTENANCES, NOW CONSTRUCTED AND EXISTING THROUGH THE CENTRAL AND SOUTHWESTERLY PORTIONS OF THE LAND HEREIN CONVEYED TOGETHER WITH THE PERPETUAL RIGHT TO THE PARTY OF THE FIRST PART, ITS SUCCESSORS AND ASSIGNS TO HAVE, KEEP AND MAINTAIN SAID RAILROAD TRACKS ON SAID LAND HEREIN CONVEYED FROM THE SOUTHEASTERLY BOUNDARY LINE TO THE NORTHERLY AND SOUTHWESTERLY BOUNDARY LINES THEREOF IN THE LOCATION SAID RAILROAD TRACKS ARE CONSTRUCTED AND EXIST AS OF THE DATE OF THIS CONVEYANCE; AND AS SHOWN MARKED "TRACK F6" AND "SPUR TRACKS" ON SAID MAP HERETO ATTACHED AND MADE A PART HEREOF, FOR THE FREE AND UNINTERRUPTED USE AND ENJOYMENT OF THE PARTY OF THE FIRST PART, ITS SUCCESSORS AND ASSIGNS, IN ITS OR THEIR RAILROAD OPERATIONS IN THE MOVING OF ENGINES, CARS, OR ANY OTHER SPECIES OF RAILROAD EQUIPMENT AND CONVEYANCE UPON, ALONG OR OVER SAID RAILROAD TRACKS, WITHOUT INTERFERENCE OR HINDRANCE, ALSO TOGETHER WITH THE PERPETUAL RIGHT TO THE PARTY OF THE FIRST PART, ITS SUCCESSORS AND ASSIGNS, TO ENTER UPON THE PREMISES HEREIN CONVEYED FOR THE PURPOSES OF REPAIRING, RENEWING, REPLACING, RECONSTRUCTING, OR REMOVING SAID RAILS, TIES AND APPURTENANCES AND SAID RAILROAD TRACKS. SAID RAILROAD TRACKS SHALL BE CONSTITUTED AS OCCUPYING WIDTHS OF LAND OF SEVENTEEN (17) FEET, BEING EIGHT AND FIVE TENTHS (8.5) FEET ON EITHER SIDE OF SAID TRACKS MEASURED AT RIGHT ANGLES OR RADIALLY FROM THE CENTER LINE OF SAID TRACKS; AND THE PARTY OF THE SECOND PART SHALL NOT PLACE OR STORE ANY MATERIAL OR DEBRIS OR CONSTRUCT ANY BUILDING OR IMPROVEMENT WITHIN THE LIMITS OF SAID STRIPS OF LAND SEVENTEEN (17) FEET IN WIDTH.

ENVIRONMENTAL EASEMENT "AS SURVEYED" DESCRIPTION – NYSDEC SITE No. 401033

ALL THAT CERTAIN PIECE OR PARCEL OF LAND, SITUATE, LYING AND BEING IN THE VILLAGE OF GREEN ISLAND, COUNTY OF ALBANY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE NORTHEASTERLY LINE OF TIBBITS AVENUE AT ITS INTERSECTION WITH THE PROPERTY DIVISION LINE BETWEEN LANDS N/F BENDIX CORPORATION ON THE NORTHWEST AND THE HEREIN DESCRIBED LANDS N/F R. FREEDMAN & SON, INC. ON THE SOUTHEAST; THENCE ALONG SAID PROPERTY DIVISION LINE AND THE PROPERTY DIVISION LINES BETWEEN SAID LANDS N/F BENDIX CORPORATION ON THE SOUTHWEST AND NORTHWEST AND SAID LANDS HEREIN DESCRIBED ON THE NORTHEAST AND SOUTHEAST THE FOLLOWING THREE COURSES AND DISTANCES: 1) N13° 31' 58"E, A DISTANCE OF 239.00' (72.847m) TO A CORNER; 2) NORTHWESTERLY ON A CURVE TO THE LEFT, A DISTANCE OF 166'± TO A CORNER, SAID CURVE CONTAINING A CHORD OF N39° 00' 45"W, 166.00' (50.597m); AND 3) N14° 24' 56"E, A DISTANCE OF 897.00' (273.406m) TO ITS INTERSECTION WITH THE PROPERTY DIVISION LINE BETWEEN LANDS N/F BCBTM, LLC ON THE NORTHEAST AND SAID HEREIN DESCRIBED LANDS ON THE SOUTHWEST; THENCE S75° 35' 04"E ALONG THE LAST MENTIONED PROPERTY DIVISION LINE, A DISTANCE OF 443.00' (135.027m) TO ITS INTERSECTION WITH THE PROPERTY DIVISION LINE BETWEEN LANDS N/F VILLAGE OF GREEN ISLAND IDA ON THE SOUTHEAST AND SAID HEREIN DESCRIBED LANDS ON THE NORTHWEST; THENCE S14° 24' 56"W ALONG SAID PROPERTY DIVISION LINE, A DISTANCE OF 979.20' (298.461m) TO ITS INTERSECTION WITH THE PROPERTY DIVISION LINE BETWEEN SAID LANDS N/F VILLAGE OF GREEN ISLAND IDA ON THE EAST AND SAID HEREIN DESCRIBED LANDS ON THE WEST; THENCE S10° 36' 30"W ALONG SAID PROPERTY DIVISION LINE, A DISTANCE OF 256.00' (78.029m) TO ITS INTERSECTION WITH THE FIRST MENTIONED NORTHEASTERLY LINE OF TIBBITS AVENUE; THENCE N75° 37' 44"W ALONG SAID LINE OF TIBBITS AVENUE, A DISTANCE OF 323.00' (98.451m) TO THE POINT OF BEGINNING CONTAINING 510,295± SQUARE FEET OR 11.71± ACRES.

SUBJECT TO ANY AND ALL EASEMENTS OF RECORD.

SURVEY NOTES:

1. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE, AND IS SUBJECT TO ANY EASEMENTS OR ENCUMBRANCES SAID ABSTRACT WOULD REVEAL.
2. ONLY COPIES OF THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S STAMPED SEAL SHALL BE CONSIDERED VALID TRUE COPIES.
3. THIS MAP MAY NOT BE USED IN CONJUNCTION WITH A "SURVEY AFFIDAVIT" OR SIMILAR DOCUMENT STATEMENT OR MECHANISM TO OBTAIN TITLE INSURANCE FOR ANY SUBSEQUENT OR FUTURE GRANTEES.
4. BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THE SUBJECT PROPERTY APPEARS TO LIE IN ZONE 'AE' (AREA HAVING A 1% ANNUAL FLOOD CHANCE, WITH A BASE FLOOD ELEVATION OF 27' AND 28' AS LABELED) AND ZONE 'X' (AREA HAVING 0.2% ANNUAL FLOOD CHANCE) ACCORDING TO THE FLOOD INSURANCE RATE MAP NO. 36001C0089D, COMMUNITY NO. 360009 – VILLAGE OF GREEN ISLAND, PANEL NO. 0089 SUFFIX D, EFFECTIVE DATE MARCH 16, 2015, AND RATE MAP NO. 36001C0202D, COMMUNITY NO. 360009 – VILLAGE OF GREEN ISLAND, PANEL NO. 0202 SUFFIX D, EFFECTIVE DATE MARCH 16, 2015.
5. ACCESS TO SITE VIA ASPHALT DRIVE FROM CANNON STREET CROSSING LANDS N/F VILLAGE OF GREEN ISLAND IDA. THIS ACCESS WAS GRANTED BY A NEW YORK STATE SUPREME COURT, COUNTY OF ALBANY SETTLEMENT AGREEMENT DATED SEPTEMBER 22, 2008 IN WHICH THE VILLAGE AGREED TO GRANT A PERMANENT ACCESS EASEMENT TO R. FREEDMAN & SON, INC. (DOCUMENT PROVIDED BY THE VILLAGE OF GREEN ISLAND).

5 0 5 10 15 m

SCALE 1:250

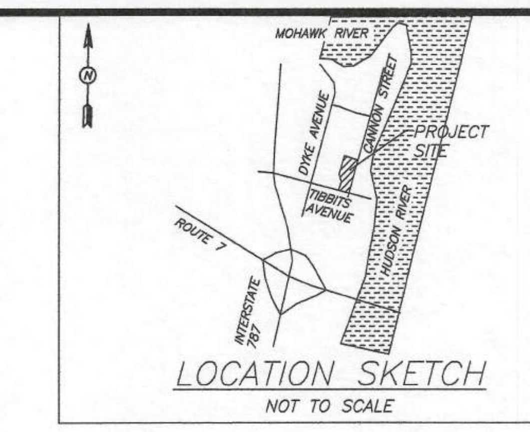
ONE METER EQUALS 3.28083333333 FEET.
ONE SQUARE METER EQUALS 10.7638673611 SQUARE FEET.

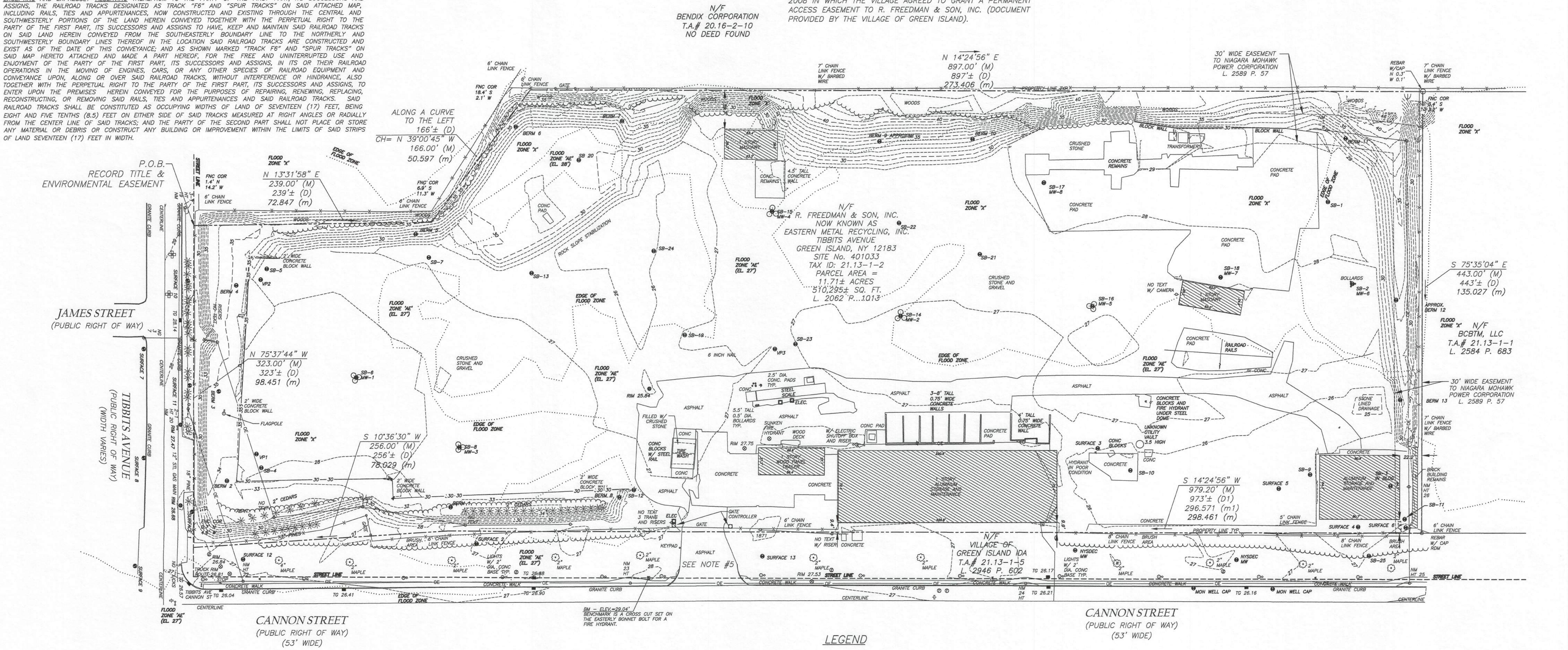
50 0 50 100 150

SCALE 1"= 50'

FIELDWORK COMPLETED ON APRIL 26, 2017
FIELDWORK UPDATED ON MAY 7, 2020
HORIZONTAL DATUM: N.A.D. '83(2011) N.Y.S.P.C.S. EASTERN ZONE
VERTICAL DATUM: N.A.V.D. '88
UNITS OF MEASURE – US SURVEY FEET

(GRID) N





ENVIRONMENTAL EASEMENT NOTE:

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 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 NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION, DIVISION OF ENVIRONMENTAL REMEDIATION, SITE CONTROL SECTION, 625 BROADWAY, ALBANY, NY 12233 OR AT DERWEB@DEC.NY.GOV.

LEGEND

CONIFEROUS TREE	UNKNOWN VALVE	M = MAP DISTANCE
LIGHT POLE	ELECTRIC METER	D = DEED DISTANCE
UTILITY POLE	ELECTRIC MANHOLE	m = METERS
MISC. POST	SANITARY MANHOLE	MW = MONITORING WELL
SIGN	DRAINAGE CATCHBASIN	SB = SOIL BORING
CONIFEROUS SHRUB	MANHOLE	
DECIDUOUS SHRUB	FIRE HYDRANT	
DECIDUOUS TREE	WATER VALVE	
N XX°XX'XX" W XX.XX' PROPERTY LINE	BORING LOCATION	
	FLAGPOLE	

WE, RAVI ENGINEERING AND LAND SURVEYING, HEREBY CERTIFY TO THE PEOPLE OF THE STATE OF NEW YORK ACTING THROUGH ITS COMMISSIONER OF THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, EASTERN METAL RECYCLING, INC., AND KNAUF SHAW LLP, THAT THIS SURVEY MAP WAS PREPARED FROM THE NOTES OF A INSTRUMENT SURVEY COMPLETED BY RAVI ENGINEERING & LAND SURVEYING, P.C. ON APRIL 26, 2017 AND FROM THE REFERENCES NOTED HEREON. ADDITIONAL FIELDWORK PERFORMED ON MAY 7, 2020.

SIGNED: Charles E. Lent
CHARLES E. LENT, LS REGISTRATION # 050049

DATE	REVISION	NO.

STATE OF NEW YORK – CHARLES E. LENT – 050049 – LICENSED LAND SURVEYOR

RAVI ENGINEERING & LAND SURVEYING, P.C.
2110 SOUTH CLINTON AVENUE, SUITE 1
ROCHESTER, NEW YORK 14618
TL: (585) 223-3660 FX: (585) 697-1764

PROJECT SURVEYOR: C. LENT L.S.
MAPPING BY: J. NAVAGH / DJH
SCALE: 1" = 50'

ENVIRONMENTAL EASEMENT PLAN

OF PROPERTY OWNED N/F BY
R. FREEDMAN & SON, INC.
NOW KNOWN AS
EASTERN METAL RECYCLING, INC.
NYSDEC SITE NO. 401033
VILLAGE OF GREEN ISLAND
COUNTY OF ALBANY, STATE OF NEW YORK

PROJECT #: 20-20-080
ISSUE DATE: JUNE 3, 2020
SHEET 1 OF 1