



22 April 2025

TECHNICAL MEMORANDUM

TO: Payson Long, PE, Project Manager, NYSDEC

FROM: Megan Miller, EIT, Project Manager

SUBJECT: In Situ Chemical Reduction Injection Work Plan
National Heatset Printing Company Site (No. 152140), Babylon, Suffolk County,
New York
Contract/Work Assignment No. D009806-18
EA Project No. 1602518

EA Engineering and Geology, P.C. and its affiliate EA Science and Technology (EA) were tasked by the New York State Department of Environmental Conservation (NYSDEC) under Work Assignment Number (No.) D009806-18 to perform site management and remedial site optimization (RSO) activities at the National Heatset Printing Company (NHP) State Superfund Site (No. 152140). This is a continuation of work previously assigned under EA Contract No. D007624-16.

At the request of NYSDEC, EA has prepared this memorandum that describes the activities proposed for the In Situ Chemical Reduction (ISCR) pilot test as part of RSO activities at the NHP Site. EA will conduct a pilot test consisting of angled injection of ISCR reagents within the building footprint at 1 Adams Boulevard and vertical injection of ISCR reagents behind the building to determine whether proposed methods would be effective at reaching and remediating the dense non-aqueous phase liquid (DNAPL) source. The objectives of the pilot test include the following:

- Determine whether PowerProbe™ or similar drill rig is capable of installing soil borings at an angle of 35 degrees from vertical to reach DNAPL beneath building at 1 Adams Boulevard
- Confirm efficacy of proposed ISCR reagents for treatment of DNAPL and dissolved phase site contaminants

This Pilot Test Work Plan is prepared based on the RSO Report submitted by EA November 2023 and subsequent vendor discussions.

1. BACKGROUND AND OBJECTIVES

1.1 SITE DESCRIPTION

The NHP Site is currently a Class 4 Site listed on the NYSDEC Registry of Inactive Hazardous Waste Sites. The site is located at 1 Adams Boulevard in the Hamlet of Farmingdale, Town of Babylon, Suffolk County, New York, and is identified as Block 1.00 and Lot 20.001 on the Town of Babylon Tax Map No. 132.20-1-3.2. A site location map is provided on **Figure 1-1**. The site is currently owned by Brookfield Properties, managed by Finkelstein Realty, and leased by Unilever. The site contains one industrial building and is 4.5 acres. The site is in an industrial area and is bounded by railroad tracks to the north, Adams Boulevard and an industrial property to the south, and industrial properties to the east and west.

1.2 BRIEF SITE BACKGROUND

The NHP Site occupied a portion of the building at 1 Adams Boulevard from July 1983 to April 1989. Their operations consisted of lithographic tri-color printing of newspaper and periodical advertisements, and the manufacturer of lithographic printing plates. The NHP Site had been using organic solvents at the site since 1983. An inspection by the Suffolk County Department of Health Services (SCDHS) in 1983 revealed that NHP was discharging photo-plating waste to the on-site sanitary system. In March 1986, an inspection performed by SCDHS revealed strong evidence of dumping from staining of inks and oils on the ground. The inspection report indicated that drums were stored improperly both inside and outside of the building.

NHP filed for bankruptcy in 1987. SCDHS discovered that after filing for bankruptcy, NHP disposed of its chemical inventory by dumping the materials onto the soil and into a leaching pool located off the rear of the building in the northeast side of the property.

In February 1988, a water sample collected by SCDHS from the leaching pool off the northeast side of the building contained elevated levels of volatile organic compounds (VOCs) (i.e., 24,000 parts per billion of *cis*-1,2-dichloroethene and 1,000 parts per billion of *p*-ethyltoluene). At the request of SCDHS, the leaching pool bottom sediments were excavated to a depth of 15 feet (ft) and end-point samples were collected in November 1988. The end-point soil samples indicated that the remaining leaching pool sediment contained elevated levels of VOCs (i.e., 13,000 parts per million of tetrachloroethene).

A remedial investigation (RI)/Feasibility Study (FS) was performed at the site in 1999¹. Potential remedial alternatives for the site were identified, screened, and evaluated in the FS. Based on the RI and FS, NYSDEC issued the Record of Decision (ROD) document, which identified the selected remedy for the site². The remedy included groundwater treatment using pump and treat, or an alternate technology (i.e., in-well stripping) for three locations: (1) source area, (2) downgradient edge of the site, and (3) downgradient edge of the off-site plume.

¹ Holzmacher, McLendon & Murrel, P.C. (H2M). 1999. *RI/FS Report*.

² NYSDEC. 1999. *Record of Decision*. June.

The remedy in the ROD was refined during the remedial design. Additional investigation performed during the remedial design concluded that injection of sodium and potassium permanganate would be the most effective source area remedy. Sampling during the remedial design (obtained in 2001) revealed the presence of contaminated soil beneath the slab of the on-site building. NYSDEC installed a soil vapor extraction (SVE) system in July 2001 at the on-site commercial building. The SVE system operated from 2002 to 2014, when the vertical extraction well was converted to a buried horizontal screen to accommodate the daily operations of a new building tenant and to improve the capacity for extraction. The SVE system was again modified in 2016 with the installation of 5 horizontal wells across the footprint of a majority of the building, based on the results of a soil vapor investigation. The SVE system continues to operate, recovering modest amounts of chlorinated VOCs (CVOCs) and serving as a line of protection for building occupants against inhalation of site contaminants.

Density driven convection (DDC) in-well stripping technology was implemented on-site and off-site starting with a pilot test in 2006. One off-site and two on-site systems were installed between 2010 and 2012. The intent of the off-site DDC systems was to capture contamination at the end of the plume and mitigate further migration of contaminants to the south-southeast. The function of the DDC systems relied on consistent groundwater levels; however, the groundwater elevations were observed 1 to 2 ft higher in early 2018 as compared to the average groundwater elevations when the systems were installed. High groundwater elevations at the site resulted in system operational issues; the Periodic Review Report for 2017–2020³ indicated that the site DDC systems were not operating as designed, and a Corrective Measures Work Plan (CMWP) was required as a result. A Draft CMWP⁴ was submitted to NYSDEC in January 2022 and determined that the DDC systems should be shut down, and an investigation of the source of continued contamination within the footprint of the building at 1 Adams Boulevard should be conducted followed by evaluation of alternate treatment strategies.

An RSO investigation was conducted by EA in 2022 and 2023⁵ and identified a DNAPL source area and dissolved-phase CVOCs within the building footprint and immediately to the north behind the building within the original source area. ISCR injection was identified as the recommended technology for remediation of the DNAPL source area and dissolved-phase contamination. Specifically, emulsified zero-valent iron (EZVI) is proposed for DNAPL remediation, and a zero-valent iron (ZVI) and carbon source blend (Provect-IR) is proposed for dissolved-phase contamination. Due to access restrictions within the building and to address the source area beneath the building, angled borings are proposed for implementation.

³ EA. 2021. *Periodic Review Report No. 4; 30 January 2017 – 30 January 2020; National Heatset Printing Co. Site (152140)*. June.

⁴ EA. 2022. Letter to Mr. Payson Long (NYSDEC, Division of Environmental Remediation), Subject: RE: Contract/WA No.: D009806-18, Site/Spill No./Pin: National Heatset Site, Babylon, New York, Suffolk County, Site No. 152140. 3 January.

⁵ EA. 2023. *Remedial System Optimization Report; National Heatset Printing Company Site (No. 152140)*. November.

2. PROPOSED PILOT TEST

The objectives of the pilot test are to evaluate the implementability of conducting angled direct push injections to the required depths to access the known DNAPL identified during the RSO investigation, and to confirm the efficacy of EZVI to remediate the DNAPL both beneath and behind the building at 1 Adams Boulevard. The pilot test will also confirm the efficacy of the proposed reagent, Provect-IR, to remediate dissolved phase CVOC concentrations. Provect-IR is a proprietary blend of ZVI, organic carbon sources, chemical oxygen scavengers, vitamin and mineral sources, and natural antimethanogenic compounds, developed and supplied by Provectus Environmental Products.

Field activities described in this section will be documented in a dedicated field logbook that will be maintained for all site activities. Field forms including injection logs and groundwater purge forms will be used during on-site work; blank forms are provided in **Attachment A**. Photographs will also be taken to document field activities, as appropriate.

2.1 PRE-PILOT TEST ACTIVITIES

2.1.1 Injection Permitting

Prior to the start of field work, EA will coordinate with the NYSDEC and prepare and submit an Underground Injection Control (UIC) Class V Permit. The UIC notification will include information on the site-specific chemicals proposed to be injected.

2.1.2 Utility Mark-Out

The proposed soil boring locations will be marked out by EA with survey paint prior to contacting Dig Safely New York for the exterior underground infrastructure location service.

2.2 PILOT TEST ACTIVITIES

2.2.1 Temporary Monitoring Well Installation

To aid in monitoring of injections, 1-inch temporary monitoring wells (TPMWs) will be installed surrounding the proposed injection points. Three pairs of TPMWs will be installed behind the building at 1 Adams Boulevard, each pair consisting of a deep well down to 83 ft below ground surface (bgs) to monitor the EZVI treatment zone and an intermediate well installed to 65 ft bgs to monitor the Provect-IR treatment zone. The TPMWs, coupled with the existing CMT-01, will be spaced 10, 15, 20, and 25 ft from the injection point to provide radius of influence monitoring as shown on **Figure 2-1**.

One angled TPMW will be installed to a vertical depth of 85 ft bgs near the injection point within the building footprint. The distance from the injection point will be identified in the field, after the installation of the TPMWs and injection behind the building. The distance of the angled TPMW from the injection point will be selected based on the radius of influence of the injection conducted behind the building.

Each TPMW will be constructed using 1-inch diameter polyvinyl chloride (PVC) pipe. Deep vertical wells will have a 5-ft length of 0.010 slot-screen, while intermediate vertical wells will have a 10-ft length of 0.010 slot-screen. The angled temporary monitoring well will have a 10-ft length of 0.010 slot-screen. Monitoring wells will be installed and developed following the methods described in EA Standard Operating Procedure (SOP) No. 019, provided as an attachment to the Generic Field Activities Plan⁶. Soil generated during well installation will be stored in 55-gallon Department of Transportation drums pending waste characterization prior to disposal.

2.2.2 Pre-injection Groundwater Sampling

Prior to initiating injections and to establish pre-pilot baseline conditions, groundwater samples will be collected and submitted for analysis of the parameters summarized in the following table.

Parameter	Method	Purpose
VOCs	8260B	Show impact of ISCR with decrease in concentrations
Total Iron	6010C	Track presence or absence of the iron-based ZVI amendment
Oxidation-reduction potential	Field meter	Values below zero indicate reducing conditions
pH	Field meter	pH between 5 and 9 standard units indicate optimal range for reductive pathway
TOC	415.3	Increase indicates presence of Provect-IR
Dissolved Gases	RSK-175	Increases indicate contaminant degradation or biological activity
Dissolved Oxygen	Field meter	Should be <0.5 to indicate reducing conditions
Nitrate	4500	Decrease indicates oxygen has been consumed
Sulfate/Sulfide	375.2/4500	Decrease in sulfate partnered with increase in sulfide indicates nitrate has been consumed

Samples will be collected from all four intervals of existing wells CMT-04, CMT-05, CMT-03, and CMT-01 (**Figure 2-1**). Groundwater samples will be shipped to an approved analytical laboratory for analysis.

Groundwater sampling procedures will include collection of water level measurements, well purging, and field water quality measurements (including dissolved oxygen, pH, specific conductance, and oxidation-reduction potential) prior to sample collection at each well location and interval. Purging and sampling will be conducted in accordance with EA SOP No. 048 for Low-Flow Sampling using a peristaltic pump and dedicated Teflon[®] or Teflon[®]-lined polyethylene tubing. Purge water will first be containerized and then discharged to a 5-gallon carbon vessel before being discharged to the ground surface outside of the building, unless otherwise directed by NYSDEC.

2.2.3 Injection Activities

Two treatment areas have been selected for this pilot test. Area 1 is associated with CMT-04 within the building footprint, and Area 2 is associated with CMT-01 behind the building. Pilot test areas are shown on **Figure 2-1**.

⁶ EA 2023. *Generic Field Activities Plan for Work Assignments under NYSDEC Contract No. D009806*. March.

CMT-04 Pilot Test Area – EZVI Injection

The CMT-04 Pilot Test Area targets the DNAPL identified within the building footprint, in the vicinity of CMT-04 with a 5-ft vertical target interval (80-85 ft bgs). Recommended EZVI dosage is based on overcoming the hydrogen demand and ensuring sufficient reagent distribution. The EZVI will be applied at 0.15% of the available pore space. Based on this design, 1,000 gallons of EZVI will be injected in the injection point. The EZVI will be applied via an angled direct-push boring starting from the east side of the building at a 35 degree angle from vertical, targeting 20 ft north of CMT-04 as shown on **Figure 2-1**. A bottom-up injection approach will be implemented across the treatment interval. A total of 2 days is anticipated for Area 1.

CMT-01 Pilot Test Area – EZVI and Provect-IR® Injection

The CMT-01 Pilot Test Area targets contaminants in the vicinity of CMT-01. Both EZVI and Provect-IR will be utilized to address the weathered DNAPL and dissolved phase contaminants identified during the RSO Investigation⁵ (EA 2023) in this area. EZVI will be used to target a 7-ft interval between 78 and 85 ft bgs, while Provect-IR® will be used to target a 38-ft interval between 40 and 78 ft bgs. Recommended EZVI dosage is based on overcoming the hydrogen demand and ensuring sufficient reagent distribution. The EZVI will be applied at 0.15% of the available pore space. Based on this design, 700 gallons of EZVI will be injected in a direct-push injection point.

A Provect-IR® formulation containing 60% ZVI (Provect-IR60) is proposed for this site. The 60% ZVI content will manage aquifer pH and maintain remedial efficacy over an extended period of time (e.g., >7 years). The 40% by mass carbon source will help reduce the oxidation-reduction potential and create favorable ISCR conditions. Considering the site conditions, Provect-IR60 will be applied at 0.50% of soil mass. This yields a requisite 7,000 pounds (lb.) of Provect-IR that will be diluted with approximately 3,500 gallons of water to create the injectate slurry. The loading rate ensures effective reagent distribution while overcoming the reagent demand for contaminant destruction. The mixing rate may be adjusted in the field to facilitate delivery. The Provect-IR® will be mixed on-site with water and injected utilizing a grout-style pump. The Provect-IR60 will be applied via the same injection point as the EZVI. The point will receive 7,000 lb of Provect-IR60, targeting a depth of 40 to 78 ft bgs with injection intervals at 41-43, 46-48, 51-53, 56-58, 61-63, 66-68, 71-73, and 76-78 ft bgs (875 lb per interval). A total of 2 days is anticipated for Area 2.

EA Personnel will provide oversight during injection field activities. As part of this oversight, injection monitoring will be conducted, which will consist of the verification of injected quantities, flow rates, pressure, visual observation for daylighting of material at injection points, and inspection of nearby monitoring wells to monitor collected water for the presence of injected reagents. In the event that delivery of ISCR reagents is unsuccessful, EA will communicate directly with NYSDEC to discuss plan modifications or cut-off of the pilot test. EA personnel will complete daily field reports and collect photographic documentation of injection activities.

2.2.4 Spill Control and Waste Management

Both potential injection reagents are relatively benign and do not represent health issues with respect to proper handling and use. Secondary containment is not required for either product. Should a spill of these products occur during mixing and injection or from daylighting during injection, the material will be promptly collected and either reused to the extent possible or containerized for non-hazardous disposal. Other waste anticipated to be generated at the site includes empty bags that contained reagents, discarded personal protective equipment, and other refuse that will be disposed of as municipal trash.

2.2.5 Health and Safety and Impacts to Nearby Properties and Occupants

EA will develop a site-specific Health and Safety Plan prior to field activities, to be followed by EA employees. The contractor will follow their company Health and Safety Plan. Copies of both Health and Safety Plans will be maintained on-site during field activities. Each morning, the team will hold a tailgate meeting to discuss the activities of the day and identify any potential health and safety concerns.

Impacts to nearby properties and occupants will be limited to increased noise associated with operation of the direct-push technology rig while advancing the injection tooling and operation of the mixing and pumping equipment. It is anticipated that work will be performed between the hours of 7 a.m. and 5 p.m.

Generation of noxious odors is not expected given the type of products injected into the ground. EA will maintain a safe area around the injection work consisting of placement of cones and monitoring of the area.

2.2.6 Post-Injection Monitoring and Groundwater Sampling

Groundwater will be evaluated to assess short-term changes in CVOC concentrations, changes in geochemistry, and visual observations for injection reagents at the newly installed TPMWs and CMT-01, CMT-03, CMT-05, and CMT-04. More wells will be sampled as appropriate based on field observations. Groundwater quality measurements (e.g., temperature, pH, specific conductance, dissolved oxygen, oxidation-reduction potential, etc.) and visual observations will be made and recorded two weeks following the injections.

Forty-five (45) days and again 90 days following the completion of injections, groundwater samples will be collected and submitted for analysis of VOCs (Method 8260B), total iron (Method 6010C), dissolved gases (Method RSK-175), sulfate (Method 375.2), sulfide and nitrate (Method 4500), and TOC (Method 415.3). Groundwater samples will be shipped to an approved laboratory for analysis.

Groundwater sampling procedures will include water level measurements, well purging, and collection of field water quality measurements (including temperature, pH, specific conductance, dissolved oxygen, oxidation-reduction potential, etc.). Purging and sampling will be conducted in accordance with EA SOP No. 048 for Low-Flow Sampling using a peristaltic pump and dedicated Teflon[®] or Teflon[®]-lined polyethylene tubing. Purge water will first be containerized and then

discharged to a 5-gallon carbon vessel before being discharged to the ground surface outside of the building, unless otherwise directed by NYSDEC.

2.3 DECONTAMINATION

All downhole equipment will be decontaminated between drilling locations. Any fluids produced during decontamination will be stored in 55-gallon Department of Transportation drums and disposed of at an approved facility.

2.4 SITE RESTORATION

Following completion of injection activities, soil borings will be grouted and the surface will be restored with asphalt.

3. ENVIRONMENTAL FOOTPRINT

All site remediation activities will inherently cause some disruptions to the environment, through resource consumption, waste generation, and emission of greenhouse gas and other pollutants. In an effort to minimize these disruptions, EA has performed an environmental footprint assessment, and identified areas where reductions of negative environmental impacts can be made.

3.1 Environmental Footprint Analysis

Developed by Battelle, the U.S. Navy, and the U.S. Army Corps of Engineers, SiteWise (version 3.2) was designed to calculate the environmental footprint of remedial actions in terms of sustainability metrics. SiteWise was developed to incorporate green and sustainable remediation into the site remediation processes and provide a quantifiable assessment. The tool is able to provide a detailed evaluation of several quantifiable sustainability metrics, including GHGs, energy usage, criteria air pollutants, water usage, resource consumption and accident risk.

Provided in a series of Microsoft Excel worksheets, SiteWise uses a building-block assessment of the remedial activities to reduce the redundancy in the sustainability evaluation and facilitate the identification of specific activities that have the greatest environmental footprint. The remedial action is divided into building blocks or modules and individual footprints of the modules are calculated. Then, the overall footprint of the remedial action is estimated by combining the individual footprints. The output of SiteWise is a series of tables and graphs that visually compare the green and sustainable remediation metrics, provided in **Attachment B**.

4. REPORTING

EA will prepare a Pilot Test Letter Report following completion of the pilot test and receipt of analytical results from the 30-day and 60-day sampling events. The letter report will discuss the field activities completed and provide conclusions regarding the capability of direct-push equipment to deliver ISCR products to the area of concern in Area 1, as well as the efficacy of ISCR as a full-scale remedy for the site. Following receipt of comments from NYSDEC, EA will generate a final Pilot Test Letter Report.

EA will communicate results of the pilot test throughout the duration of the field activities, including submittal of daily reports, field forms, and discussion of the potential cut-off of the pilot test should the delivery of the ISCR reagents prove unsuccessful. Upon successful delivery of reagent, draft analytical summary tables will be provided as available following the 30-day post-injection groundwater monitoring activities.

5. COST ESTIMATE AND PROJECT SCHEDULE

A cost estimate and project schedule have been prepared to include all activities identified in this work plan, as well as continuation of site management activities through 2026. The cost estimate is provided as **Attachment C**. The project schedule is provided as **Attachment D**.

If you have any questions or require additional information, please do not hesitate to contact me at 315-565-6557.

cc: M. Cruden (NYSDEC)
D. Conan (EA)
J. McNew (EA)

Figures

- 1-1 Site Location Map
- 2-1 Proposed Pilot Test Injection Areas and Monitoring Locations

Attachments

- A Field Forms
- B SiteWise Output
- C Cost Estimate
- D Project Schedule

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Figures

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Legend

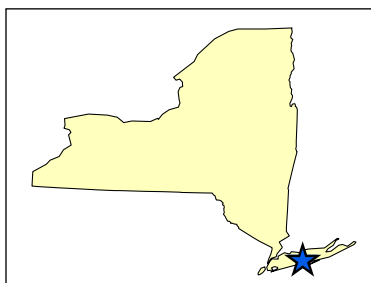
- ★ Site Location

Figure 1-1

Site Location Map

National Heatset Printing Co. Site (152140)
Babylon, New York

Map Date: 2/12/2025
Source: ESRI, 2011



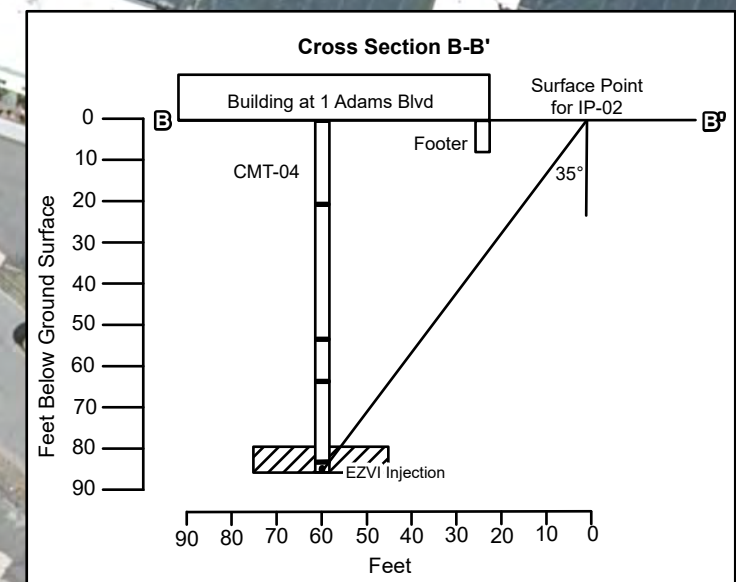
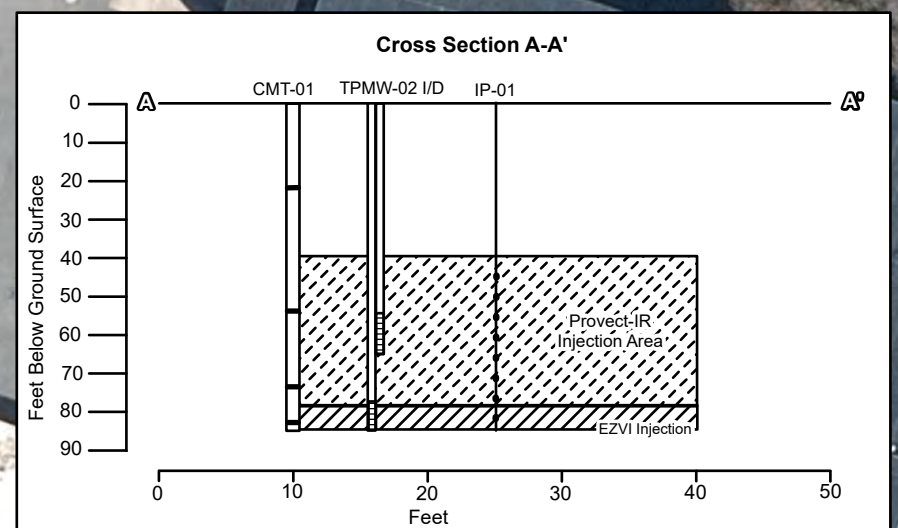
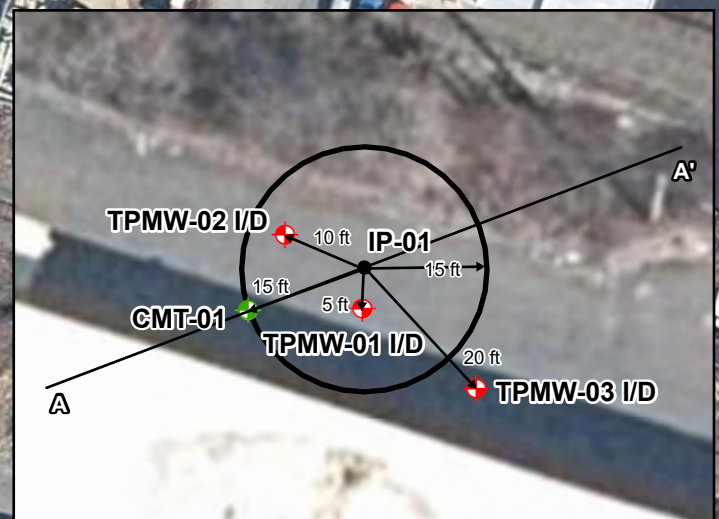
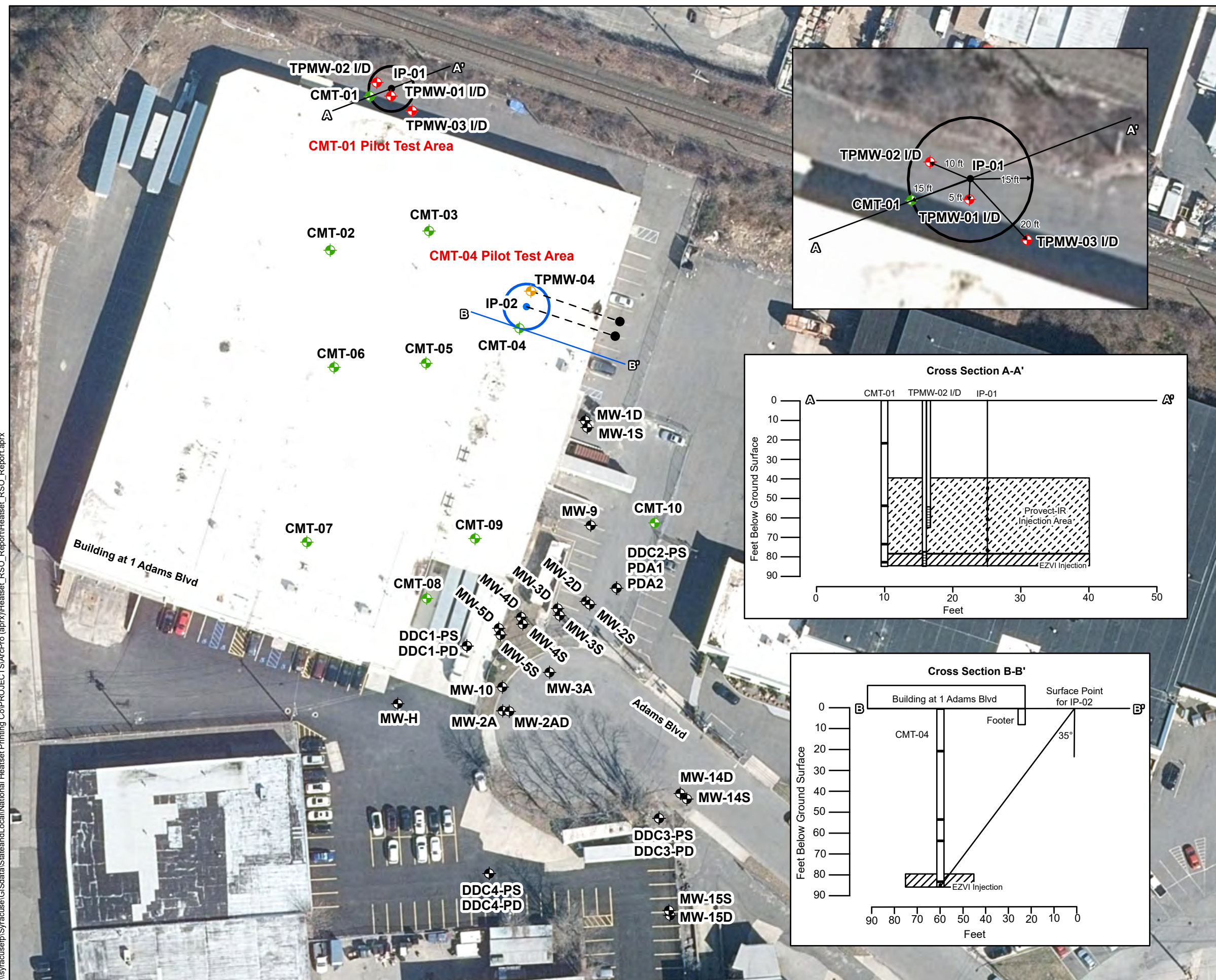
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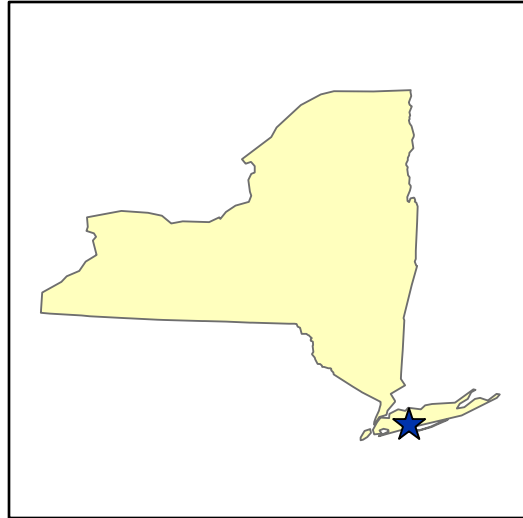
Department of
Environmental
Conservation



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VICINITY MAP



Legend

- ★ Site Location
- Proposed Vertical Injection Point
- Proposed Angled Injection Point
- Injection Area- Vertical Injection Point
- Injection Area- Angled Injection Point
- ⊕ Existing Monitoring Well
- ⊕ Existing CMT Well
- ⊕ Proposed Angled Temporary Monitoring Well
- ⊕ Proposed Temporary Monitoring Well Pair
- CMT-01 Cross Section A-A'
- CMT-04 Cross Section B-B'

Note:
CMT = Continuous Multichannel Tubing
Location of TPMW-04 to be determined in field.

Map Date: 2/12/2025
Projection: NAD 1983 StatePlane New York Long Isl
FIPS 3104 (US Feet)
Source: ESRI

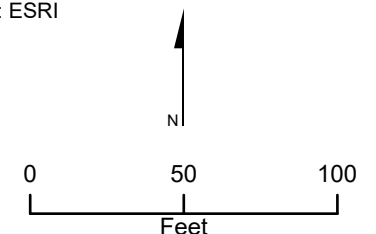


Figure 2-1
Proposed Pilot Test Injection Areas and
Monitoring Locations
National Heatset Printing Co. Site (152140)
Babylon, New York

Attachment A

Field Forms

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Project/Site: _____

Date: _____

Operator: _____

EA Personnel:

Injection Point ID:

Injection Summary

Depth Interval	Start Time	Injection Flow Rate	Injection Pressure	Stop Time	Target (gal/lbs)	Actual (gal/lbs)	Units	Notes
				Total Volume				

*Injection monitoring and recordings should be completed every 2-3 minutes at each depth interval. Pressures and flow rates will be recorded in the table below. If after two consecutive readings, high pressure and reduced flow rates are observed - injection tooling will be retracted to the next injection interval.

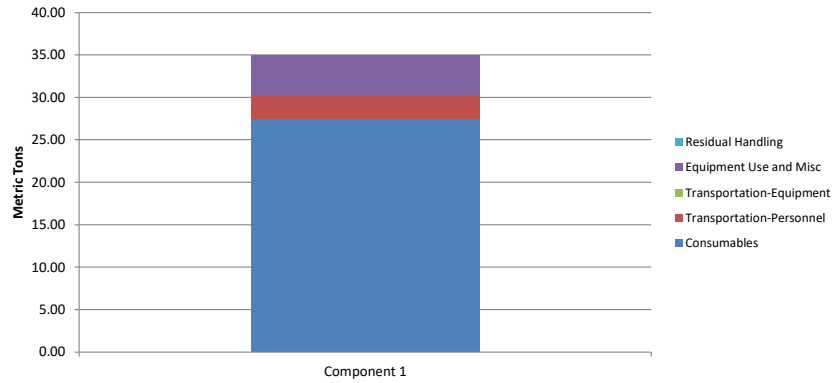
Attachment B

SiteWise Output

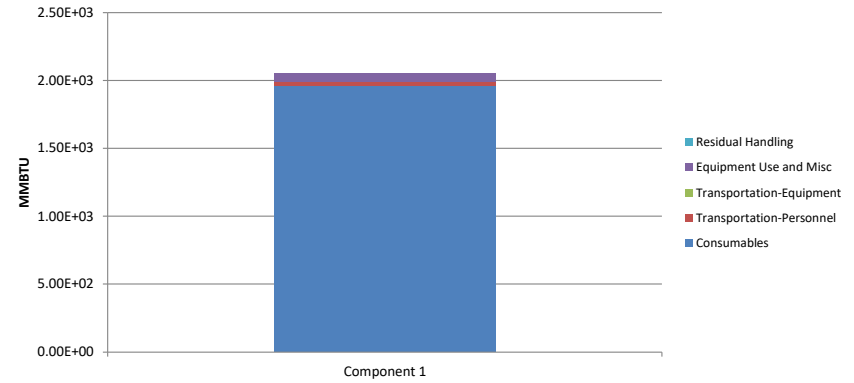
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Sustainable Remediation - Environmental Footprint Summary Pilot Work Plan													
Phase	Activities	GHG Emissions	Total Energy Used	Water Consumption	Electricity Usage	Onsite NOx Emissions	Onsite SOx Emissions	Onsite PM10 Emissions	Total NOx Emissions	Total SOx Emissions	Total PM10 Emissions	Accident Risk Fatality	Accident Risk Injury
		metric ton	MMBTU	gallons	MWH	metric ton	metric ton	metric ton	metric ton	metric ton	metric ton		
Component 1	Consumables	27.53	2.0E+03	NA	NA	NA	NA	NA	5.5E-02	9.2E-02	1.6E-02	NA	NA
	Transportation-Personnel	2.60	3.3E+01	NA	NA	NA	NA	NA	1.0E-03	2.8E-05	1.3E-04	6.0E-05	4.8E-03
	Transportation-Equipment	0.00	0.0E+00	NA	NA	NA	NA	NA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Equipment Use and Misc	4.84	5.9E+01	4.5E+03	1.6E+00	3.2E-02	7.4E-04	2.9E-03	3.4E-02	2.5E-03	3.6E-03	3.7E-05	1.2E-02
	Residual Handling	0.00	0.0E+00	NA	NA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Sub-Total	34.97	2.05E+03	4.50E+03	1.58E+00	3.16E-02	7.36E-04	2.86E-03	9.03E-02	9.42E-02	1.92E-02	9.62E-05	1.71E-02
Total		3.5E+01	2.1E+03	4.5E+03	1.6E+00	3.2E-02	7.4E-04	2.9E-03	9.0E-02	9.4E-02	1.9E-02	9.6E-05	1.7E-02

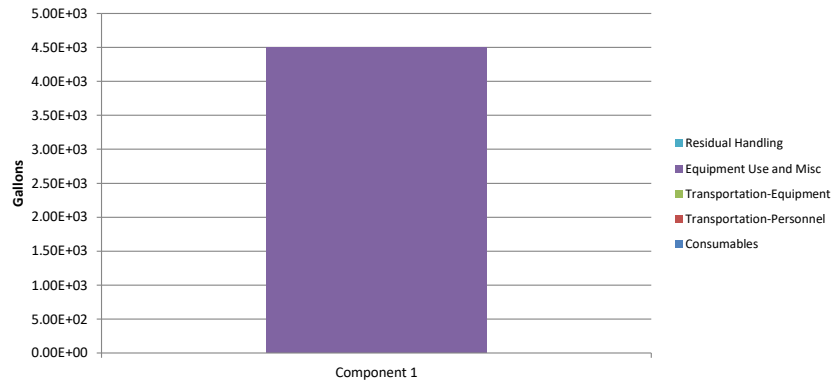
GHG Emissions



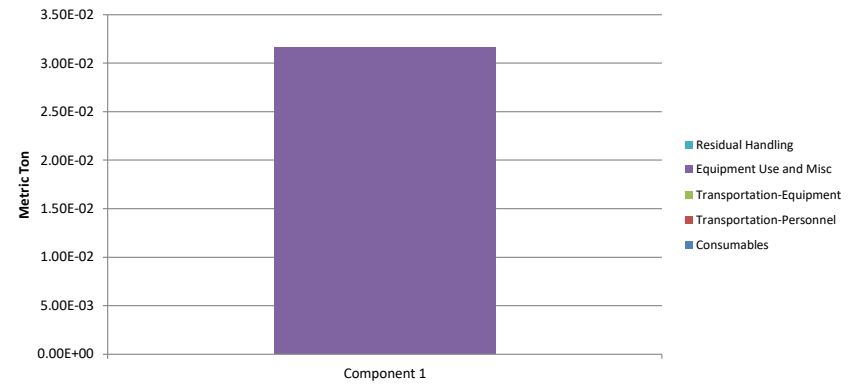
Total Energy Used



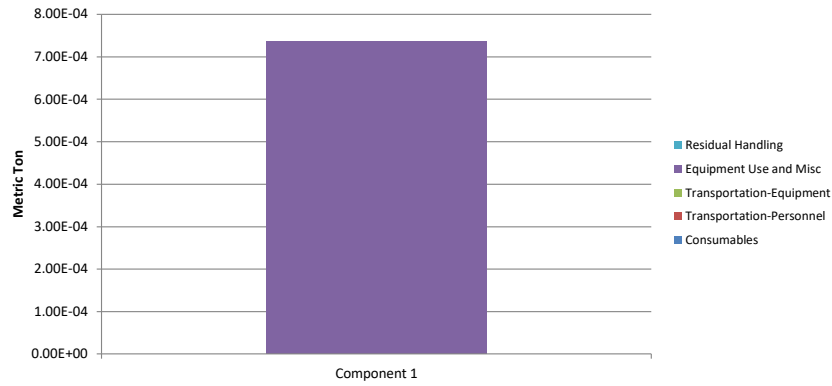
Water Consumption



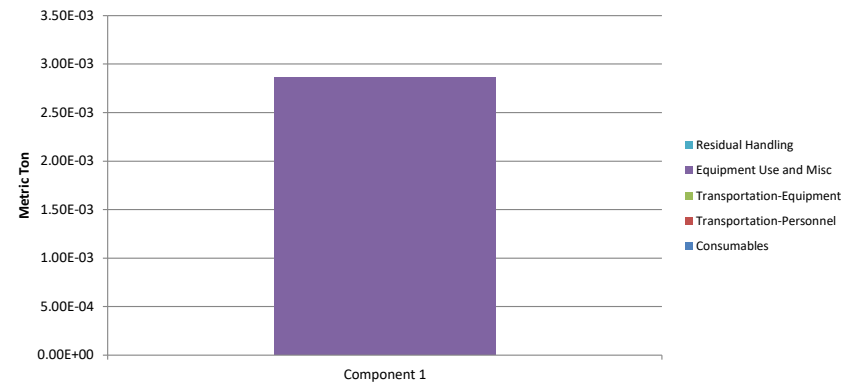
Onsite NOx Emissions



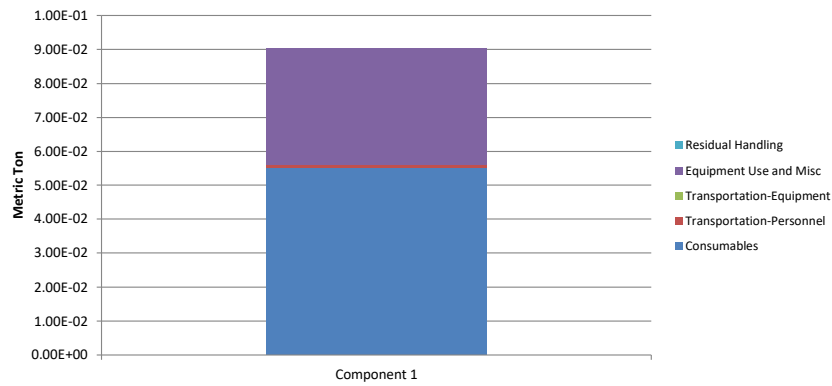
Onsite SOx Emissions



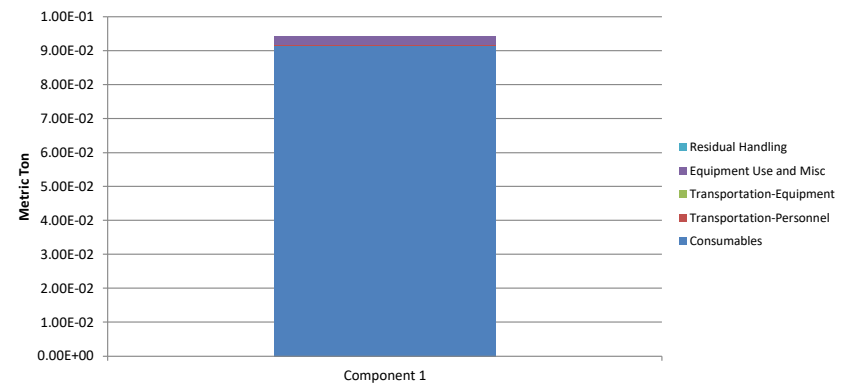
Onsite PM₁₀ Emissions



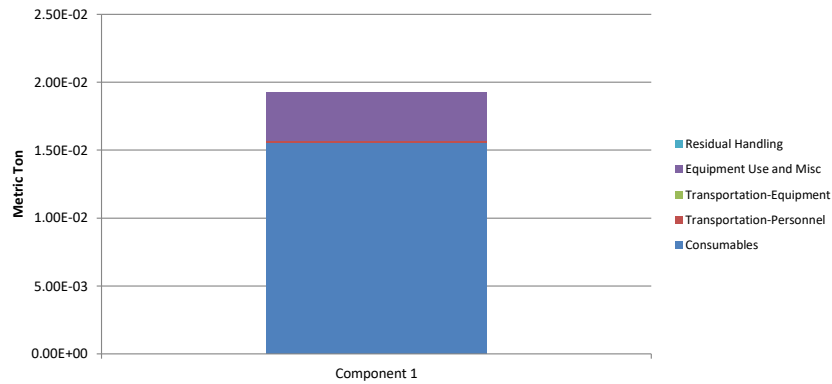
Total NOx Emissions



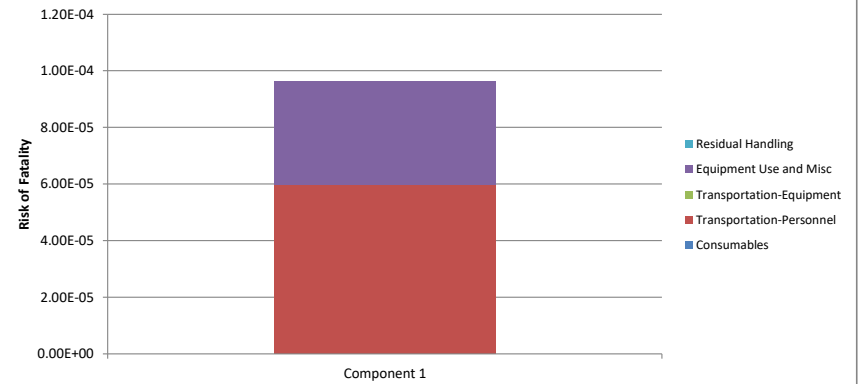
Total SOx Emissions



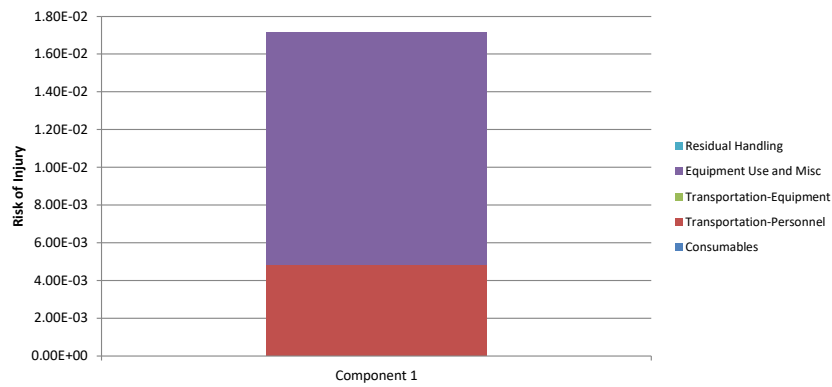
Total PM₁₀ Emissions



Accident Risk - Fatality



Accident Risk - Injury



Attachment C

Cost Estimate

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**Attachment B
Preliminary Cost Estimate**

Remedial Site Optimization Pilot Test and Continued SVE O&M	
Work Assignment Task	Estimated Cost (as rounded)
Task 1 - Preliminary Activities/Scoping	\$ 15,000.00
Task 2 - Site Management Plan	\$ 15,000.00
Tasks 3 & 4 - Monitoring and Maintenance/Reporting	\$ 290,000.00
Quarterly SVE O&M Through October 2026	
Utilities	
Annual Groundwater Sampling	
Laboratory Analysis	
Blower Maintenance	
Carbon Removal	
Task 5 - Periodic Review Report	\$ 25,000.00
Task 6 - Remedial Site Optimization (Pilot Test)	\$ 370,000.00
Baseline Sampling	
Injections, including drilling, injectate/shipping, and field staff	
Post-Injection Monitoring and Sampling	
Reporting	
Overall Project Total	\$ 715,000.00

Attachment D

Project Schedule

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National Heatset Printing Co.
Site O&M and Remedial Site Optimization- ISCR Injection Pilot Test
NYSDEC Site No. 152140
EA Project No. 16025.18

ID	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Half 1, 2025				Half 2, 2025						Half 1, 2026						Half 2, 2026											
							Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
1	Task 1 - Pilot and Amendment Planning	66 days	Mon 9/2/24	Mon 12/2/24																														
2	1.1 Subcontractor Procurement	20 days	Mon 9/2/24	Fri 9/27/24																														
3	1.2 Amendment Preparation	30 days	Mon 9/2/24	Fri 10/11/24																														
4	1.3 Submit Amendment Package to NYSDEC	1 day	Fri 4/25/25	Fri 4/25/25	3FS-1 day																													
5	1.4 NYSDEC Review	30 days	Mon 4/28/25	Fri 6/6/25	4																													
6	1.5 Final NYSDEC Review and Approval	1 day	Mon 6/9/25	Mon 6/9/25	5																													
7	Coordination Call with 1 Adams Blvd	1 day	Mon 6/23/25	Mon 6/23/25																														
8	Task 2 - Site Management Plan	76 days	Thu 1/1/26	Thu 4/16/26																														
9	2.1 SMP Revision	76 days	Thu 1/1/26	Thu 4/16/26																														
10	2.1.1 SMP Revision and Update	44 days	Thu 1/1/26	Tue 3/3/26																														
11	2.1.2 Submit SMP to NYSDEC	1 day	Wed 3/4/26	Wed 3/4/26	10																													
12	2.1.3 NYSDEC Review	20 days	Thu 3/5/26	Wed 4/1/26	11																													
13	2.1.4 Edit and Submit Revised SMP	10 days	Thu 4/2/26	Wed 4/15/26	12																													
14	2.1.5 NYSDEC Review and Approval	1 day	Thu 4/16/26	Thu 4/16/26	13																													
15	Task 3 - Operation & Maintenance	494 days	Mon 6/9/25	Thu 4/29/27																														
16	3.1 Quarterly SVE O&M Events	409 days	Mon 6/9/25	Thu 12/31/26																														
24	3.2 Quarterly SVE O&M Reports	379 days	Mon 7/21/25	Thu 12/31/26																														
32	Task 4 - Monitoring and Reporting	301 days	Wed 8/13/25	Wed 10/7/26																														
33	4.1 Annual GW Monitoring Events	301 days	Wed 8/13/25	Wed 10/7/26																														
34	2025 Annual GW Monitoring	3 days	Mon 8/25/25	Wed 8/27/25	18																													
35	2026 Annual GW Monitoring	3 days	Mon 11/30/26	Wed 12/2/26																														
36	Task 5 - Periodic Review Report	90 days	Fri 1/31/25	Thu 6/5/25																														
37	5.1 PRR	90 days	Fri 1/31/25	Thu 6/5/25																														
38	5.1.1 Draft PRR	58 days	Fri 1/31/25	Tue 4/22/25																														
39	5.1.2 Submit PRR to NYSDEC	1 day	Wed 4/23/25	Wed 4/23/25	38																													
40	5.1.3 NYSDEC Review	20 days	Thu 4/24/25	Wed 5/21/25	39																													
41	5.1.4 Edit and Submit Revised PRR	10 days	Thu 5/22/25	Wed 6/4/25	40																													
42	5.1.5 NYSDEC Review and Approval	1 day	Thu 6/5/25	Thu 6/5/25	41																													
43	Task 6 - Remedial System Optimization	169 days	Tue 6/10/25	Fri 1/30/26																														
44	6.6 ISCR Injection Pilot Test	61 days	Tue 6/10/25	Tue 9/2/25																														
45	6.6.1 Pre-Injection Activities	61 days	Tue 6/10/25	Tue 9/2/25																														
46	Permitting	60 days	Tue 6/10/25	Mon 9/1/25	6																													
47	Utility Mark-Out	1 day	Tue 9/2/25	Tue 9/2/25	46																													
48	Baseline Groundwater Sampling	3 days	Tue 7/22/25	Thu 7/24/25	7FS+20 days																													
49	6.6.2 ISCR Injection Pilot Test	54 days	Fri 8/8/25	Wed 10/22/25																														
50	Injection Pilot Test	5 days	Fri 8/8/25	Thu 8/14/25	48FS+10 days																													
51	Parameter Check - Week 1	1 day	Mon 8/25/25	Mon 8/25/25	50FS+6 days																													
52	Parameter Check - Week 2	1 day	Mon 9/1/25	Mon 9/1/25	51FS+4 days																													
53	Parameter Check - Week 3	1 day	Mon 9/8/25	Mon 9/8/25	52FS+4 days																													
54	Post Injection GW Sampling - 30 days	3 days	Mon 9/15/25	Wed 9/17/25	50FS+21 days																													
55	Post Injection GW Sampling - 60 days	3 days	Mon 10/20/25	Wed 10/22/25	54FS+22 days																													
56	6.3 Pilot Test Reporting	60 days	Mon 11/10/25	Fri 1/30/26	55																													
57	Draft Pilot Test Letter Report	30 days	Mon 11/10/25	Fri 12/19/25	55FS+12 days																													
58	NYSDEC Review	20 days	Mon 12/22/25	Fri 1/16/26	57																													
59	Edit and Submit Revised Letter Report	10 days	Mon 1/19/26	Fri 1/30/26	58																													

Project: National Heatset Printing Co. Date: April 2025	Task		Project Summary		Inactive Task		Duration-only		Finish-only	
	Split		External Tasks		Inactive Milestone		Manual Summary Rollup		Progress	
	Milestone		External Milestone		Inactive Summary		Manual Summary		Deadline	
	Summary		Inactive Task		Manual Task		Start-only			