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Cover System Interim Remedial Measure Work Plan

Coventry Commons
130-132 Harrison Street, Newark, New York
NYSDEC Site No. 859036

Prepared for:



Coventry Commons LLC
1201 East Fayette Street
Syracuse, New York

April 2026

C&S Project No. W96.007.013

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1201 East Fayette Street
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Prepared by:



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499 Col. Eileen Collins Boulevard
Syracuse, New York 13212**

I, H. Nevin Bradford, certify that I am currently a New York State Registered Professional Engineer and that this Interim Remedial Measure Work Plan was prepared in accordance with applicable statutes and regulations and in substantial conformance with the Department of Environmental Remediation Technical Guidance for Site Investigation and Remediation (DER-10) and DER Green Remediation (DER-31).

A handwritten signature in blue ink that reads 'H. Nevin Bradford'.

H. Nevin Bradford
State of New York Professional Engineer No. 086008



Registration Expires: 04.31.2026

April 24, 2026

C&S Project#: W96.007.013

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ACRONYMS

AGV – Air Guideline Value

ASP – Analytical Services Protocol

BGS - Below Ground Surface

BMP – Best Management Practice

CAMP – Community Air Monitoring Plan

CCR – Construction Completion Report

CP-51 – Commissioner Policy 51

CVOC – Chlorinated Volatile Organic Compound

DER – Department of Environmental Remediation

DUSR – Data Usability Summary Report

DNAPL – Dense Non-Aqueous Phase Liquid

EDD – Electronic Data Deliverable

ELAP – Environmental Laboratory Accreditation Program

EP - Environmental Professional

EWP – Excavation Work Plan

FEMA – Federal Emergency Management Agency

GHG – Greenhouse Gas

GRT – Green Remediation Technique

HAP – Hazardous Air Pollutant

HASP – Health and Safety Plan

HAZWOPER – Hazardous Waste Operations

HCR – New York State Homes and Community Renewal

HFM – Historic Fill Material

HREC – Historical Recognized Environmental Condition

IRM – Interim Remedial Measure

MC5 – Geoprobe® Systems' Macro-Core® Sampler

MMBtu – Metric Million British Thermal Unit

MS / MSD – Matrix Spike / Matrix Spike Duplicate

MSL - Mean Sea Level

MW – Monitoring Well

NAPL - Non-Aqueous Phase Liquid

NTU – Nephelometric Turbidity Unit

NYSDEC - New York State Department of Environmental Conservation

NYSDOH – New York State Department of Health

PAH - Polycyclic Aromatic Hydrocarbon

PCB - Polychlorinated biphenyl

PCE - Tetrachloroethene

PFAS - Per- and polyfluoroalkyl substances

PFE – Pressure Field Extension

PFOA – Perfluorooctanoic acid

PFOS – Perfluorooctanesulfonic acid

PGW SCO – Protection of Groundwater Soil Cleanup Objective

Phase I ESA - Phase I Environmental Site Assessment

Phase II ESA - Phase II Environmental Site Assessment

PID – Photoionization Detector

PPB - Parts Per Billion

PPE – Personal Protective Equipment

PPM - Parts Per Million

PVC – Polyvinyl Chloride

PVE – Pore Volume Exchange

QA / QC - Quality Assurance / Quality Control

QAPP – Quality Assurance Project Plan

RAO – Remedial Action Objective

RCRA – Resource Conservation and Recovery Act

REC - Recognized Environmental Condition

RIWP – Remedial Investigation Work Plan

ROI – Radius of Influence

RR SCO – Restricted Residential Soil Cleanup Objective

SC – Site Characterization

SCG – Standards, Criteria, and Guidance

SCO – Soil Cleanup Objective

SCWP – Site Characterization Work Plan

SEFA – Spreadsheets for Environmental Footprint Analysis

Site – 130-132 Harrison Street, Newark, NY

SSDS - Sub-Slab Depressurization System

SVE – Soil Vapor Extraction

SVOC – Semi-volatile Organic Compound

TAL – Target Analyte List

TCE - Trichloroethene

TCL – Target Compound List

TCLP – Toxicity Characteristic Leaching Procedure

TIC – Tentatively Identified Compound

TOC – Total Organic Carbon

TOGS – Technical and Operational Guidance Series

µg/L – Micrograms per liter

µg/m³ – Micrograms per Cubic Meter

USDA - United States Department of Agriculture

USEPA - United States Environmental Protection Agency

UST - Underground Storage Tank

UU SCO – Unrestricted Use Soil Cleanup Objective

VIA – Vapor Intrusion Assessment

VOC - Volatile Organic Compound

VOV – Volatile Organic Vapor

1.0 INTRODUCTION

C&S Engineers, Inc. (C&S) has prepared this Interim Remedial Measure (IRM) Work Plan ("Work Plan") on behalf of Coventry Commons, LLC for State Superfund Program "P" Site No. 859036 which is the Coventry Commons Site, located at 130-132 Harrison Street in Newark, Wayne County, New York (the "Site"). **Figure 1** shows the location of the Site on a topographic map and **Figure 2** shows the Site on an aerial photograph with identified pertinent features.

This Work Plan provides:

- A description of source removal efforts to remove and dispose of near-surface soils on the Site exterior that are impacted by chlorinated volatile organic compounds (CVOCs) at concentrations exceeding Protection of Groundwater (PGW) soil cleanup objectives (SCOs).
- A description of the engineered cover system elements to be installed across the Site to isolate remaining impacts in the surface and near-surface soils for a Track 4 Cleanup for restricted residential use.

This Work Plan has been prepared consistent with the Division of Environmental Remediation "Technical Guidance for Site Investigation and Remediation" (DER-10) and "Green Remediation" (DER-31).

1.1 Regulatory Context

During the environmental review process by NYS Homes & Community Renewal (HCR) in 2024, various environmental reports were shared with the New York State Department of Environmental Conservation (NYSDEC). Those reports indicated that elevated concentrations of CVOCs were present in sub-slab soil vapor, but at that time, a potential source location was not determined. Based on the findings, the Department classified the Site as a Potential (P) Site for the Registry of Inactive Hazardous Waste Disposal Sites (commonly referred to as the list of State Superfund Sites). On February 24, 2025, an Order on Consent and Administrative Settlement, Index No. R8-20250103-5, was executed by the Department. The Order required the submission of an acceptable Site Characterization (SC) Work Plan and execution thereof. The field work for the SC has been performed, a draft SC Report was provided to the Department in October 2025, and it was approved by the Department on January 21, 2026. Order on Consent R8-20250103-5 was closed out upon the acceptance of the SC Report.

The SC concluded that the Site appears to pose a threat to human health and the environment due to the presence of CVOCs in soil, groundwater, and soil vapor on the northern portion of the Site, with the highest impacts located below and north/northeast of the former boiler room. Soil exceedances of PGW SCOs (primarily tetrachloroethene – PCE and trichloroethene – TCE) were shallow and localized. Groundwater impacts were more widespread on the northern portion of

the Site, with CVOCs exceeding TOGS standards. The detailed scope and results of the SC are provided in **Section 2**.

As a result of the SC findings, the Department requested additional documentation to better characterize the nature and extent of the contamination, as well as to assess areas not previously investigated. As such, a Remedial Investigation Work Plan (RIWP or RI Work Plan) was prepared and it was approved in February 2026. The RI was a condition of Order on Consent and Administrative Settlement, Index No. R8-20260121-6 (the new "Order"), executed January 30, 2026. The scope of the RI was intended to investigate the Areas of Concern (AOCs) identified in the SC and to better define the extent of CVOC impacts on the north portion of the Site. The RI included geophysical, soil, and groundwater evaluations. The RI Report is currently being prepared. However, data summary tables and figures showing sample locations and results were provided to the Department in March 2026, with pertinent portions of those documents appended to this work plan. The scope and results of the RI that are pertinent to this Work Plan are detailed in **Section 2**.

Based on conversations with Department staff, it is our understanding that the Department agrees that exposure to remaining soil contamination can be achieved by removal of accessible exterior CVOC source material and installation of the cover system elements described herein.

1.2 Site Description

The Site is located at 130-132 Harrison Street in Newark, Wayne County, New York. The Site consists of tax map / parcel no. 68111-18-416166, which is 5.31 acres. The Site includes a 112,676 square-foot, three-story building in the center of the property (e.g. the Main Building). There was formerly an adjoining (attached) 39,576 square-foot, single-story Warehouse on the east side of the Main Building, which was recently demolished. There is also a separate 5,280 square-foot, two-story Annex building on the south side of the property. Since the Site is undergoing redevelopment, the former asphalt parking lots and greenspace are in varying stages of change.

The Site is currently undergoing a historic rehabilitation of the Main Building and the Annex. The warehouse and some non-historic additions on the north end of the Main Building have been demolished as part of the ongoing redevelopment of the Site.

The site is bounded to the north by East Sherman Avenue and a mixed use commercial / residential area, to the south by Harrison Street and various commercial properties, to the east by Blackmar Street and residences, and to the west by a bank and electrical supply store.

Figure 1 shows the location of the Site on a topographic map and **Figure 2** shows the Site on an aerial photograph with identified pertinent features.

1.3 Site History

The Site and surrounding areas have been associated with suburban development since at least 1890. Please note that historical information regarding on-site uses is primarily derived from Fire Insurance Maps (FIMs), city directories, aerial imagery, and historical topographic maps, and not from firsthand experience. Therefore, the specific nature and extent of operations within individual buildings is not fully known, and historical uses are inferred based on building labels and listings rather than documented operational records.

The Site was occupied by residences from 1890 to 1906. During this time, the Main Building was constructed. Once the Main Building was complete, the Site began operating as a tinware manufacturing company. Later in 1912, the Main Building was further expanded to include a machine shop and boiler house on the north side of the structure. There was also coal, lumber and hay storage since 1912 and a junk yard was present on the southwest corner of the property in 1924 until about 1963. The residences were largely demolished between the early 1960s and the early 1980s, to accommodate the construction of the former Warehouse. The nature of their demolition is not known.

In 1963, cosmetic manufacturing began under C.H. Stewart and Co. and lasted for about 23 years (there are no records of new ownership until 1986, when Newark SC Admin offices remained for at least ten years). In 1985, ownership conveyed to Rodney Graybill and then to Graybill Real Estate, LLC in 1998. Graybill Real Estate, LLC owned the Site until Coventry Commons LLC (current owner) took ownership in 2024. Based on city directories, several businesses operated at the Site during Graybill Real Estate's ownership. From at least 2000 to sometime between 2003 and 2008, the building was occupied by Synergy Marketing Group. From at least 2008 continuing through 2022, the building housed the Victim Rescue Center of Wayne County. During the same time, the building was occupied by Graphix Direct (a sign manufacturer) from at least 2012 to sometime between 2012 and 2016, and HPH Precision Machining, Inc. from at least 2016 continuing through 2022. Specifics regarding the extent of HPH Precision Machining's operations are not known, including what, if any chemicals were utilized in their machining process. It is also not known where operations were conducted. No hazardous waste shipments / manifests were identified within publicly available databases obtained during the completion of previous Phase I Environmental Site Assessments.

Where known, the locations of the former operations are shown on **Figure 2**.

1.4 Site Geology and Hydrogeology

1.4.1 Site Geology

The topography of the Site and immediately surrounding area slopes gently toward the north. Topographic elevations at the Site range from approximately 441 feet above mean sea level (amsl) at the south end to approximately 437 feet amsl at the north end.

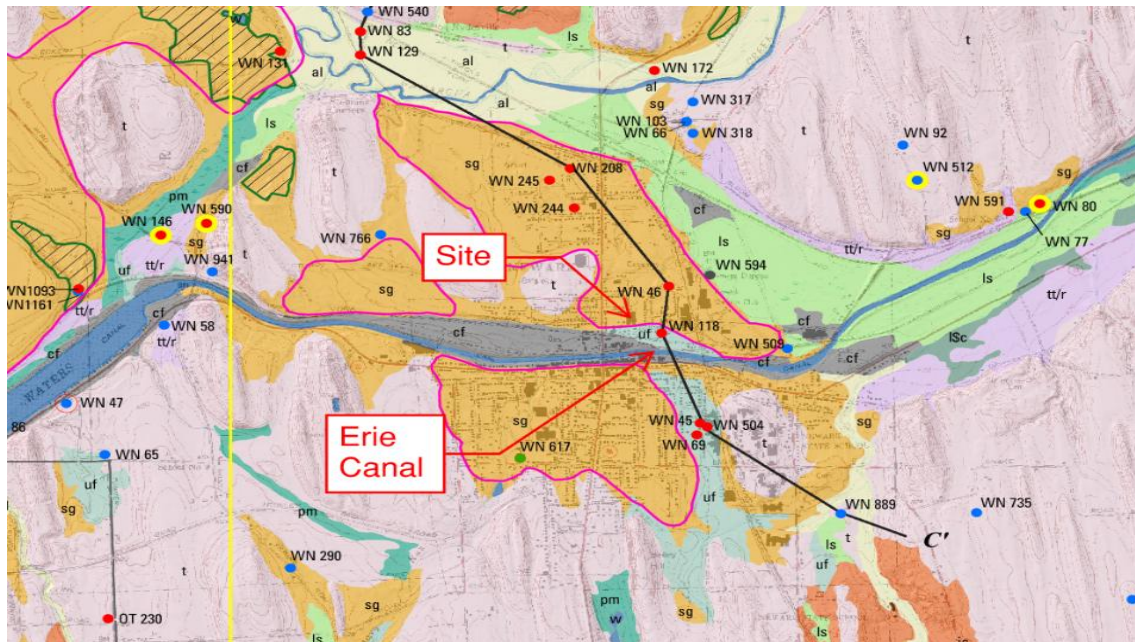
According to the US Department of Agriculture (USDA) online web soil survey, the surficial geology of the Site consists of Phelps gravelly loam. Based on previous investigations, those soils are brown / gray / tan in color and are principally silty sands with gravel. Urban Land is also present and contains historic fill material (HFM). HFM is non-native material, deposited on a site to create useable land, and generally was contaminated prior to emplacement. The HFM includes brick, ash, cinder, and coal.

According to the United State Geological Survey (USGS), the sandy overburden is described in a higher level of detail as: *Glaciofluvial sand and gravel—Deposited in early stages of eastward meltwater discharge from glacial lakes and from ice to the north. Also includes sand and gravel of uncertain origin. Mostly in the form of high terraces as much as 60 ft above the adjacent Fairport-Lyons channels. Terrace surfaces can include areas of finer sediments likely deposited as flow slackened just before abandonment as base level decreased. Subsequent channel incision has completely cut through the sand and gravel in many places. The sand and gravel are most common in wide, low areas where the meltwater velocities slowed enough for deposition, rather than in narrow channels. Most villages, such as Macedon, Palmyra, Newark, and Lyons, were built on these terraces. Water-resource potential from these deposits is proportional to the areal extent and also to saturated thickness, which can be as little as a few feet in small interdrumlin areas. Yields of a few hundred gallons per minute have been reported from large-diameter municipal wells. Away from the primary meltwater channels, these deposits are relatively thin with limited water-resource potential.*

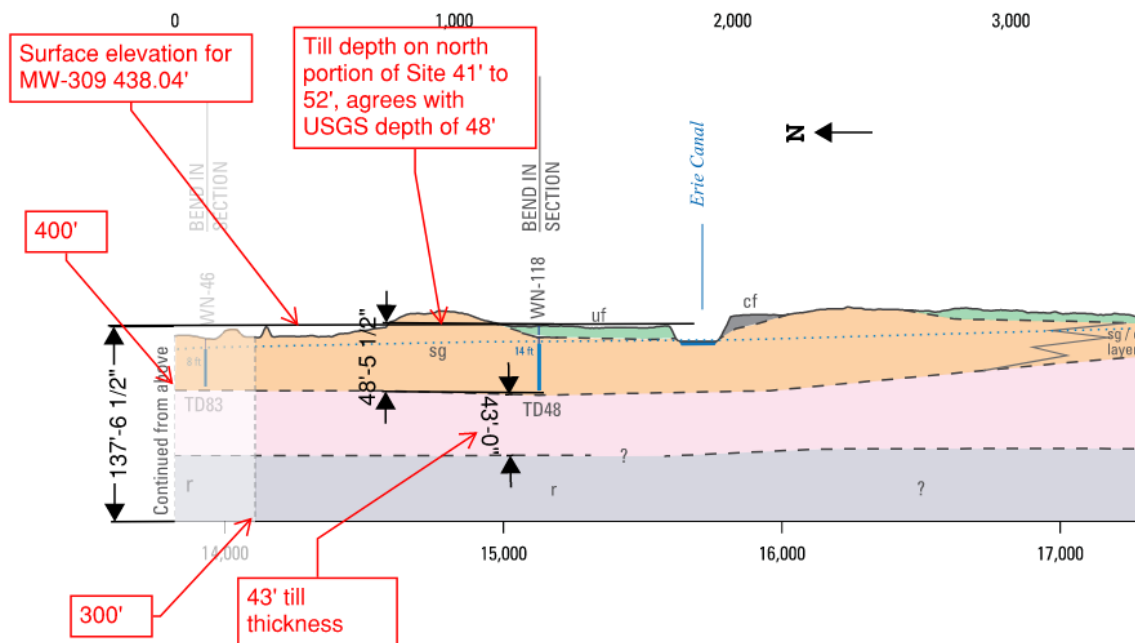
They describe the glacial till below the sand deposit as: *An unsorted, unstratified mixture of clay, silt, sand, gravel, and boulders deposited beneath the ice as lodgment till during glacial advance or as ablation till as the ice front downwasted or retreated. Till in the area has less gravel and boulder content because the ice overrode lacustrine deposits in the Lake Ontario basin. Typically up to 80–90 ft thick but, in a few locales, as much as 120–140 ft thick. Low permeability and a confining unit, but may yield adequate amounts of water for domestic use where permeable gravelly zones exist.* Previous investigations conducted on the Newark Former Manufactured Gas Plant Site (NYSDEC Site No. 859021) located at 125 North Main Street, approximately 750 feet southwest of the Site, concluded that the till is likely lodgment till due to its dense nature. Standard Penetration Testing (SPT) blow count N-values between 50 and 100 were typically observed within the till unit.

Additional geologic information was obtained from the review of mapping prepared by the USGS and presented in the document entitled *Hydrogeology of Aquifers Within the Fairport-Lyons*

Channel System and Adjacent Areas in Wayne, Ontario, and Seneca Counties, New York, Scientific Investigations Report 2021-5086. Applicable mapping is provided below.



This document presents the findings of a hydrogeologic investigation performed by the USGS, in cooperation with the NYSDEC, within portions of Wayne, Ontario, and Seneca Counties. As part of this study, geologic conditions were documented through a north-to-south transect positioned just east of the Site. These conditions were used to generate a geologic cross-section along that transect. The conditions along this transect indicate that the deposits in the vicinity of the Site consist of glaciofluvial sand and gravel underlain by a till regime, as shown below.



Based on the mapping, the sand and gravel deposits extend to an approximate depth of 48 to 49 feet below grade (389-390 feet amsl), which is consistent with the observations made during C&S' previous site characterization activities (41 to 52 feet thickness, 386 to 397 ft amsl). The till layer is mapped to be approximately 40 +/- feet in thickness, with the bedrock surface present at a presumed depth of approximately 90 feet (till / bedrock interface ~ 348 ft amsl).

1.4.2 Site Hydrogeology

The Site is located approximately 500 feet north of the Erie Canal and 1,000 feet southwest of an unnamed tributary of Ganargua Creek. The tributary flows in a general northerly direction and drains into Ganargua Creek at a point approximately 5,700 feet north of the Site. Ganargua Creek meanders through the area on a general easterly course, ultimately draining into the Erie Canal near the Village of Lyons, New York. Collectively, these waterbodies are part of the Seneca, Oneida, Oswego watershed. The Erie Canal is used primarily for navigation and recreational boating and is not used as a drinking water supply in the vicinity of the Site. Ganargua Creek and its unnamed tributary are used for drainage and ecological habitat and are not used as drinking water sources in the vicinity of the Site.

The depth to groundwater is approximately 15 feet below grade and groundwater flow is to the northeast at an approximate gradient of 0.004 feet per linear foot from the south to north extent of the Site. Groundwater flow specific to the Site could be different from the regional flow. Potential influences include local drainage features, seasonal groundwater level fluctuations, subsurface geology, surface topography, and / or other local features.

There are no surface water bodies or mapped wetlands located on or immediately adjacent to the Site. The Site is not shown as located in a flood zone on Federal Emergency Management Agency (FEMA) mapping.

Drinking water and sanitary sewer service are provided by the Village of Newark. The drinking water is sourced from Canandaigua Lake. Before distribution, the water is filtered by slow sand filtration, diatomaceous earth pressure filtration, vacuum filtration, and sodium hypochlorite is added for disinfection. Other subsurface utilities at the Site include natural gas, electric, and stormwater.

2.0 SUMMARY OF ENVIRONMENTAL CONDITIONS

2.1 Previous Investigations

Environmental information from the following documents has been summarized below:

- *Phase I Environmental Site Assessment, 130 and 132 Harrison Street, LaBella, July 2019*
- *Soil Sampling Investigation Report, 130 Harrison Street, completed by Neu-Velle in November 2020*
- *Phase I Environmental Site Assessment, Coventry Commons, Ravi Engineering & Land Surveying, July 2022*
- *Vapor Intrusion Assessment, 130-132 Harrison Street, Ravi Engineering & Land Surveying, August 2022*
- *Phase II Environmental Site Assessment, Proposed Coventry Commons, C&S Engineers, January 2023.*
- *Phase I Environmental Site Assessment, Coventry Commons, C&S Engineers, November 2024.*
- *Phase II Environmental Site Assessment, Coventry Commons, C&S Engineers, November 2024.*
- *Site Characterization Report, Coventry Commons, C&S Engineers, January 2026.*

These documents can be downloaded utilizing the following link: [Files for DEC](#)

Phase I Environmental Site Assessment – 130 and 132 Harrison Street, July 2019, LaBella

In July 2019, LaBella, P.C. (LaBella) conducted a Phase I Environmental Site Assessment (Phase I ESA) at the Site.

The assessment revealed the following Recognized Environmental Conditions (RECs) in connection with the Site:

- The Site was historically utilized as a tinware manufacturing facility occupied by Reed Manufacturing Inc. from between at least 1904 and 1947, followed by E.H. Stuart Co. Inc. from between at least 1963 and 1981. Reportedly G.H. Stuart Co. Inc. utilized the building as a cosmetics manufacturing plant. The southwest portion of the Site was also identified as a junkyard on Sanborn fire insurance maps from between at least 1924 and 1963.

The assessment revealed the following Historical REC (HREC) in connection with the Site:

- Two 12,000-gallon #2 fuel oil underground storage tanks (USTs) and approximately 199 tons of fuel oil impacted soil were removed from the north exterior of the boiler room in the Main Building on October 28, 2013. The NYSDEC was notified and spill # 1307418 was assigned to the Site. Confirmatory soil samples collected from the excavation limits were

submitted for laboratory analysis and identified two semi-volatile organic compounds (SVOCs) at concentrations slightly exceeding NYSDEC Commissioners Policy 51 (CP-51) SCOs. The confirmatory soil sampling results appear to have been reviewed by the NYSDEC and spill # 1307418 was assigned an inactive status on October 21, 2013.

As a result of the Phase I ESA, LaBella recommended further investigation to assess subsurface conditions.

Soil Sampling Investigation Report – 130 Harrison Street, November 2020, Neu-Velle, LLC

In October 2020, Neu-Velle, LLC advanced soil borings in what is assumed to be the southern and eastern portions of the Site to assess areas of concern noted in the Phase I ESA by LaBella Associates. The precise locations of the borings could not be determined due to the low quality of the figures included in the report. The investigation included the advancement of three soil borings and sampling of soil for Volatile organic compounds (VOCs) and SVOCs. No physical evidence of impacts was observed. VOCs and SVOCs were below laboratory detection limits and metals were below commercial use standards.

Phase I Environmental Site Assessment – Coventry Commons, July 2022, Ravi Engineering & Land Surveying, P.C.

In July 2022, Ravi Engineering & land Surveying, P.C. (Ravi) conducted a Phase I ESA at the Site. The assessment revealed the following RECs in connection with the Subject Property:

- Historic industrial Subject Property usage is a REC. Site soils and/or groundwater are potentially impacted by historic releases of VOCs.

As a result of the Phase I ESA, they recommended conducting a vapor intrusion assessment of the building to determine if the historic Subject Property usage resulted in a VOC release on the Subject Property and / or vapor intrusion into the building. They also recommended that an asbestos survey, lead paint survey, and hazardous material survey be conducted prior to renovation of the building on the Subject Property.

Vapor Intrusion Assessment – 130-132 Harrison Street, Newark, New York, August 2022, Ravi Engineering & Land Surveying, P.C.

In August 2022, Ravi conducted a vapor intrusion assessment at the Subject Property. The assessment included the collection of one indoor air, one sub-slab soil vapor sample, and one outdoor air sample. The assessment revealed the presence of TCE in sub-slab and indoor air at concentrations that require mitigation, per the New York State Department of Health (NYSDOH) Decision Matrices.

As a result, Ravi recommended the following:

- Prior to site acquisition, Ravi recommend sharing the data with an environmental attorney to determine the path forward.
- A sub-slab depressurization system (SSDS) will be required to mitigate the TCE vapors and achieve compliance with the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York protocols.
- The source of the TCE, PCE, and methylene chloride vapors should be investigated.
- A Phase II ESA should be conducted to determine soil and groundwater conditions at the Subject Property. An initial passive soil gas study was recommended to identify “hotspots” and focus the soil and groundwater sampling locations.
- Air sampling should be repeated during the heating season between November 15 and April 15 in conformance with NYSDOH protocols.

Phase II Environmental Site Assessment, Proposed Coventry Commons, Newark, New York, January 2023, by C&S Engineers.

This Phase II ESA was performed due to the findings of the previous reports summarized above. Based on these documents, C&S designed the Phase II to focus on the following areas:

- Subsurface soils throughout the Site – These efforts included the advancement of 15 soil borings and the collection and analysis of 15 soil samples for Target Compound List (TCL) and Commissioner Policy 51 (CP-51) volatile organic compounds (VOCs).
- Groundwater conditions throughout the Site – These efforts included the advancement of five temporary groundwater monitoring wells and the collection and analysis of three shallow groundwater samples (two wells did not produce water) for TCL VOCs.
- Sub-slab and indoor air conditions – These efforts included the collection and analysis of three co-located indoor air / sub-slab soil vapor samples and one ambient air sample.

C&S’ Phase II ESA of the Site was conducted on November 1 and 2, 2022. The following summarizes and discusses the results of this Investigation.

Subsurface Soil Samples

A total of 15 soil borings were advanced throughout the Site to a depth of approximately 15-20 feet below ground surface (bgs). Within soil boring SB-09, photoionization detector (PID) detections were present at concentrations of 60 parts per million (ppm) at an approximate depth of 10-12 feet bgs. This boring was advanced within the area of the former USTs. Evidence of

impacts were not observed in the adjacent / proximate borings (SB-10, 11, 12) or in any of the other borings advanced during the Phase II ESA. A soil sample was collected from SB-9 at the interval that displayed the highest observable contamination. VOC concentrations did not exceed any applicable SCOs in the subsurface soil samples. Semi-volatile organic compound (SVOC) analysis was not performed. Based on the UST Closure Report, it is documented that visual and olfactory evidence of heating oil impacts and slight exceedances of SVOCs were present at the time of UST closure.

Groundwater Samples

Five temporary monitoring wells were installed across the Site to allow collection of shallow groundwater samples at the water table. Due to insufficient recharge in MW-1 and MW-2, they could not be sampled. As such, three groundwater samples were collected and analyzed for VOCs. VOC concentrations were below NYSDEC Technical and Operational Guidance Series 1.1.1 (TOGS) standards. However, detectable concentrations of TCE and PCE were present in each well. TCE and PCE values at MW-4 were 1.8 µg/L or parts per billion (ppb) and 4.1 ppb, respectively. TCE and PCE values at MW-3 and MW-5 were less than 1 ppb. The TOGS limit for TCE and PCE is 5 ppb.

Soil Vapor / Air Samples

Seven samples were collected and analyzed for VOCs via USEPA Method TO-15. These samples were collected from multiple locations with one indoor air / sub-slab co-located sample collected within the office building, one co-located sample set collected in the former boiler room, and one co-located sample set collected in the main warehouse structure. An ambient upwind outdoor air sample was also collected from the west side of the Site.

TCE was detected in two of the three indoor air samples. The NYSDOH Air Guidance Value (AGV) is 2 µg/m³. TCE was detected at a concentration of 2.5 µg/m³ in sample IA-2. The concentration of TCE in sample IA-3 approached the guidance value at 1.6 µg/m³. TCE was also detected in the corresponding co-located sub-slab soil vapor samples. TCE was detected at a concentration of 600 µg/m³ in sample SS-2 (co-located with IA-2) and a concentration of 28 µg/m³ in sample SS-3 (co-located with IA-3). TCE is in the NYSDOH Decision Matrix A. Based on the concentrations at IA-2 / SS-2 and IA-3 / SS-3, mitigation is required.

Phase I Environmental Site Assessment, Coventry Commons, 130-132 Harrison Street, Newark, New York, November 2024, by C&S Engineers.

An updated Phase I ESA was requested by entities involved in the approval / financing of the project. The Phase I ESA identified the following RECs:

- Historical metal plating and cosmetics manufacturing that may have utilized per- and polyfluoroalkyl substances (PFAS) in the process.

- The former 12,000-gallon No. 2 fuel oil USTs. As indicated above, the 2022 Phase I ESA by Ravi indicated that the USTs were a HREC. However, soil must meet Unrestricted Use (UR) SCOs to meet the definition. Although the NYSDEC deemed that no additional remedial work was required, C&S deemed the condition a REC to align with the Phase I standard.

The Phase I ESA identified the following Vapor Encroachment Concerns / Recognized Environmental Conditions:

- Elevated TCE concentrations in the sub-slab soil vapor and indoor air.
- 175 West Union Street – Former drycleaner with significant chlorinated solvent contamination and off-site vapor encroachment concerns.

Phase II Environmental Site Assessment, Coventry Commons, 130-132 Harrison Street, Newark, New York, November 2024, by C&S Engineers.

The November 2024 Phase I ESA identified a concern not identified in the previous Phase I ESAs, which was the potential previous use of PFAS during manufacturing processes onsite. Based on the *USEPA Interim Guidance on the Destruction and Disposal of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) and Materials Containing Perfluoroalkyl and Polyfluoroalkyl Substances (USEPA, 2024)*, metal plating and cosmetics manufacturing are considered secondary industries that are known to have used PFAS in their operation. Per the guidance document, PFAS releases are possible at any stage of the industrial processes. C&S designed a Phase II that focused on the areas of the Site that were judged most likely to have been impacted by the use or surface releases of PFAS. Efforts were generally focused to the rear of the building (north) where the loading docks and former wastewater treatment facilities were located. The effort was not intended to be a full site characterization to delineate the horizontal and vertical extent of contaminants. The scope of the Phase II ESA included the advancement of six soil borings and three temporary groundwater monitoring wells, and the collection and analysis of six soil samples and three groundwater samples for PFAS.

The upper five feet of soil from each boring was analyzed for PFAS, as this interval represents the zone of likely initial deposition from historical surface sources. The analytical results were compared to the guidance values provided in *Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs (NYSDEC, 2023)*. The document provides guidance values for two PFAS compounds: Perfluorooctanesulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA). The majority of the PFAS concentrations were below laboratory detection limits. The concentration of PFOS in the sample from SB-206 (0'-5') was 0.00293 ppm, which exceeds the UR SCO of 0.00088 ppm, but is below the Restricted Residential Use (RR) SCO of 0.044 ppm. There were no SCO exceedances in the other five samples. The results show compliance with the SCOs intended for a site with a multi-family apartment.

Each of the three monitoring wells were also sampled for PFAS and the analytical results were also compared to the NYSDEC PFAS guidance document. PFOS and PFOA concentrations were below guidance values in the sample from MW-201. PFOS in MW-202 and MW-203 ranged from 0.0275 to 0.035 micrograms per liter (µg/L), as compared to a guidance value of 0.0027 µg/L. PFOA in MW-202 and MW-203 ranged from 0.0239 µg/L to 0.0448 µg/L, compared to a guidance value of 0.0067 µg/L. MW-202 is located to the north of the building on the hydraulically downgradient side of the Site, while MW-203 is located to the south of the building on the hydraulically upgradient side of the Site.

Former Boiler Room Soil Testing, July 2025, C&S Engineers.

C&S is currently providing onsite construction observation and support. On July 10, 2025, the site contractor was cutting the concrete floor in the basement to allow for excavation and installation of buried utilities. The basement is located in the northern portion of the Main Building and was the historical boiler room. During the saw cutting process, it was discovered that the former fuel oil lines were cast into the concrete. An oil sheen was observed on the concrete cutting water that was pooled on the surface. The section of concrete that contained the fuel oil piping was cut out and stockpiled onsite. Sheens were absorbed with oil absorbent pads. The soil below the piping had physical evidence of petroleum impacts, such as staining, odors, and detectable volatile organic vapors (VOVs) measured by a PID. Soil from the utility excavations in other areas didn't exhibit obvious staining or odors, but VOVs were recorded by the PID. The concrete containing the fuel oil piping was placed in the same stockpile as soil and absorbent pads. Additional excavation is planned for the boiler room and the soil will likewise be placed in the existing pile. A spill was reported to the NYSDEC Spill Hotline and assigned number 25-03526.

C&S collected two soil samples from below the piping and three additional soil samples from the utility trenches. The samples were collected in the upper 12 inches of soil and analyzed for VOCs and SVOCs. The analytical results indicated that PCE and TCE concentrations at three of the five locations exceeded UR SCOs, PGW SCOs, and RR SCOs. PCE ranged from 38 to 44 ppm, compared to a UR SCO and PGW SCO of 1.3 ppm and a RR SCO of 18 ppm. TCE ranged from 47 to 70 ppm, compared to a UR SCO and PGW SCO of 0.47 ppm and an RR SCO of 6.4 ppm. Benzene, ethylbenzene, toluene, and xylene concentrations exceed the UR SCOs and PGW SCOs under the former piping but were below the RR SCOs. Several polycyclic aromatic hydrocarbons (PAH) concentrations exceed UR, PGW, and RR SCOs at three of the five sampling locations.

Site Characterization Report, Coventry Commons, 130-132 Harrison Street, Newark, New York, January 2026, by C&S Engineers

The purpose of the SC activities were to evaluate contaminant impacts to soil and groundwater, determine if the Site poses a threat to public health and the environment, and determine whether the threat requires further investigation. The SC consisted of the following:

- The initial phase of the SC was performed in May / June 2025. The purpose was to identify the source of contamination resulting in the documented soil vapor intrusion of CVOCs

into the Main Building. The investigation included the advancement of seven soil borings, the construction of seven groundwater monitoring wells, and the collection / analysis of subsurface soil and groundwater samples.

- The second phase of the SC was performed August / September 2025. The purpose was to identify a source of the soil and groundwater impacts on the northern portion of the Site as identified by the initial SC activities, as well as to gather information that could be utilized in the future to generate remedial plans. The investigation included the advancement of 38 soil borings in the northwest portion of the Main Building (basement and first floor) and around the perimeter of the northwest portion of the building, the construction of six groundwater monitoring wells on the northwest portion of the Site, and the collection / analysis of subsurface soil and groundwater samples.

The SC activities were completed consistent with NYSDEC DER-10 and the SCWP submitted to NYSDEC in February 2025 (revised April 2025) and subsequently approved by NYSDEC on April 3, 2025. The SC activities also employed Best Management Practices (BMPs) to reduce the environmental footprint of the work, consistent with the guidance contained in DEC *Program Policy DER-31: Green Remediation*, dated January 20, 2011 (DER-31).

Summary of Findings

- 64 subsurface soil samples and 7 groundwater samples were collected during the first round of SC activities in May / June 2025. Soil and groundwater samples were analyzed for a combination of TCL VOCs, TCL SVOCs, pesticides, herbicides, polychlorinated biphenyl (PCBs), target analyte list (TAL) metals including mercury and cyanide, PFAS, and 1,4-dioxane.
- 94 subsurface soil samples and 11 groundwater samples were collected during the second round of SC activities in August / September 2025. Soil samples were analyzed for TCL VOCs, and groundwater samples were analyzed for TCL VOCs, chloride, sulfate, alkalinity, dissolved organic carbon, total organic carbon, total, ferric, and ferrous iron, nitrate, nitrite, ethane, ethene, and methane.
- Six subsurface soil samples and three groundwater samples were collected during the 2024 PFAS Phase II ESA. Soil and groundwater samples were analyzed for PFAS only.
- 15 subsurface soil samples, three groundwater samples, and seven air samples (three sub-slab soil vapor, three indoor air, and one outdoor air) were collected during the 2022 Phase II ESA. Soil, groundwater, and air samples were analyzed for VOCs only.
- Three air samples (one sub-slab vapor, one indoor air, and one outdoor air) were collected during the 2022 VIA. Air samples were analyzed for VOCs only.

Subsurface Soil

Contaminant exceedances in subsurface soils were primarily limited to the former boiler house area, with VOCs representing the most significant impacts. Low-level PCE / TCE (exceeding UR / PGW SCOs but less than RR SCOs) were detected in boring SB-302 located directly north of the former boiler house. PCE / TCE concentrations exceeding UR, PGW, and RR SCOs were identified in the shallow soil below the basement floor. Additional VOCs (benzene, chloroform, ethylbenzene, toluene, and xylene) were also detected at two locations in the soil below the basement floor. The concentrations exceeded UR / PGW SCOs but were less than RR SCOs.

SVOCs exceeded UR, PGW, and / or RR SCOs in three locations below the basement floor, with concentrations ranging from 0.46 to 26 ppm. Nickel exceeded the UR SCO in SB-302 located directly north of the former boiler house but was below PGW and RR SCOs. PFOS exceeded UR / PGW SCOs in SB-206 located south of the Main Building but was below RR SCOs.

Groundwater

CVOCs were the primary contaminants detected in groundwater. PCE and / or TCE slightly to significantly exceeded their TOGS standard of 5 ppb at MW-301, MW-302, MW-309, and MW-312 located on the northwest / north-central portion of the Site. Methylene chloride slightly exceeded its TOGS standard of 5 ppb at MW-313 located in the basement of the former boiler room. These wells are located at or downgradient of the former boiler room and machine shop located in the northwest portion of the Main Building. TCE concentrations ranged from 6.9 ppb in the southern portion of the plume to 24 ppb in the northern portion of the plume. PCE concentrations ranged from 61 ppb in the southern portion of the plume to 210 ppb in the northern portion of the plume.

Six different SVOCs were detected at two monitoring wells. MW-301 and MW-305 contained concentrations of PAHs ranging from 0.03 ppb to 0.29 ppb. The TOGS standards for these compounds are either 0.002 ppb or non-detect, making the exceedances marginal.

MW-301, MW-303, MW-305, MW-306, and MW-307 contained concentrations of various inorganics that are common minerals in groundwater across the northeastern United States and often associated with "hard water". Iron ranged from 547 ppb to 75,500 ppb. Magnesium ranged from 36,000 ppb to 279,000 ppb. Manganese ranged from 444.8 ppm to 3,923 ppb. Sodium ranged from 170,000 ppb to 617,000 ppb. Additional testing of MW-301 indicated that the heavy metals detected in the initial round of sampling appear to have been the result of elevated groundwater turbidity (greater than 500 NTU). Groundwater turbidity in MW-101 was less than 50 NTU during the second round of sampling and these metals were all below their respective TOGS standard.

During the 2024 PFAS Phase II ESA, concentrations of PFOS and PFOA in MW-202 and MW-203 exceeded their respective TOGS standards by one order of magnitude. PFOS concentrations ranged from 0.0275 to 0.0356 ppb and PFOA concentrations ranged from 0.0239 to 0.0448 ppb.

Advanced analytical techniques were employed to assess natural biodegradation potential at the Site. Quantitative PCR analysis measured gene copies of key bacterial indicators for reductive dechlorination, revealing sub-optimal bacterial conditions for natural biodegradation. Compound-specific isotope analysis examined carbon isotope ratios in chlorinated compounds, with PCE delta values ranging from -25.8 to -27.5 ‰ and TCE delta values ranging from -32.1 to -35.1 ‰. These values are similar to virgin product signatures, indicating limited natural degradation. However, geochemical parameters show some favorable conditions for biodegradation, including low dissolved oxygen levels (≤ 0.5 ppm), negative oxidation-reduction potential values, and optimal pH ranges.

Sub-Slab Soil Vapor

During previous investigations, TCE exceeded the NYSDOH guidance value of $2 \mu\text{g}/\text{m}^3$ at two of the four indoor sampling locations, with concentrations ranging from 2.5 to $3.5 \mu\text{g}/\text{m}^3$. Accompanying sub-slab soil vapor samples ranged in concentration from 28 to $600 \mu\text{g}/\text{m}^3$. The highest sub-slab soil vapor TCE concentration was collected in the basement in the northeastern portion of the Main Building. The air sample was collected in proximity to basement locations where shallow soil contained concentrations of TCE, PCE, benzene, ethylbenzene, and toluene that exceeded their PGW SCOs and methylene chloride in groundwater exceeded its TOGS standard.

Groundwater at the Site is located approximately 15 feet bgs and is expected to be a source of soil vapor intrusion.

Remedial Investigation, C&S Engineers, date TBD.

Field work for the RI was performed in March and April 2026 and the report is currently being drafted. The RI included a geophysical survey, a HFM evaluation consisting of the collection and analysis of 30 soil samples and horizontal and vertical profiling of HFM across the Site, an AOC subsurface soil evaluation including the collection and analysis of 61 soil samples, and a groundwater characterization program consisting of the installation of seven shallow sand / gravel overburden wells, one deep sand / gravel overburden well, and six deep glacial till wells, as well as the sampling of these new wells and several additional pre-existing wells.

The results of the HFM evaluation are the basis for the scope of this work plan and therefore the following summary is provided to discuss the background and scope. Based on the results of previous investigations, as well as ongoing construction activities, HFM was suspected to be present across the majority of the Site, including the upper two feet of the Site. Therefore, soil samples were collected across the Site during the RI to characterize the HFM. The evaluation included the screening, sampling, and testing of the entire vertical profile of HFM, which included existing surface soil. The test pits and soil borings were positioned to provide spatial coverage of the Site at a density of four locations per acre and to investigate areas proposed to be constructed as pervious and impervious surfaces.

Since it was presumed that majority of the surface soil across the Site is impacted with HFM, the data was not intended to be utilized as justification to retain existing surface soils in place as part of the clean cover system. The data is being used to visually and analytically delineate the vertical and horizontal extent of HFM across the Site.

Soil samples were either obtained via the excavation of test pits on the exterior of the Site or via soil borings in the interior of the Main Building. A mini-excavator was utilized to excavate the test pits. A Geoprobe direct-push drilling rig was used to advance the borings. Each boring location was continuously sampled in five-foot intervals using a two-inch steel sampling tube fitted with a disposable acetate liner.

All non-disposable sampling equipment was decontaminated using the three station method (as described in the RI Work Plan) between runs and between drill locations to avoid potential cross contamination of samples.

Soils from each location (16 test pits and four soil borings) were classified and screened in accordance with that work plan. Sample collection was biased toward material horizons that contained HFM. In instances where HFM was not observed, a sample was collected from the upper two feet of soil. The samples collected are outlined in the following table.

Table 2-1: HFM Samples

Matrix	Sampling Locations	Depth (feet)	Analysis	No. of Samples	Sampling Location Rationale
HFM / near-surface soil	TP-401 to TP-416 SB-411 SB-414 SB-418 SB-420	0 to top of native material	All Samples Total Petroleum Hydrocarbons (TPH) TCL VOCs + Tentatively Identified Compounds (TICs) TCL SVOCs + TICs TAL metals 25% of Samples Pesticides Herbicides PCBs Cyanide / Hexavalent chromium PFAS / 1,4-dioxane	20	Spatial distribution across the Site; to obtain four samples per acre.
HFM / surface soil	TP-401 TP-406 TP-410 TP-411 TP-415	0 to 0.2 0.5 to 1	TPH TCL VOCs + TICs TCL SVOCs + TICs Target analyte list (TAL) metals	10	Vertical distribution across the shallow soil at the Site; collected at one test pit per acre.

1. All explorations were advanced to a depth sufficient to determine the vertical extent of HFM.
2. Sample depths varied to be representative from the ground surface to the terminal depth of the HFM.

3. Investigation beneath the on-Site building utilized four soil borings from the AOC investigation (SB-411, SB-414, SB-418, and SB-420). Other samples were collected via test pits.
4. Full suite samples were biased to test pits where HFM was observed.

The results confirm that HFM is present across the majority of the Site and it is present from just below the surface to a maximum of five feet below grade along the east exterior of the Main Building. The HFM contains mixed soil types, cinders, ash, coal, metal, brick, slag, and other anthropogenic materials. Contaminants present at concentrations greater than UR SCOs include VOCs (TCE and PCE), nine SVOCs (principally polynuclear aromatic hydrocarbon compounds), metals, PCBs, PFAS, and pesticides. The following observations are provided:

- TCE and PCE concentrations exceed PGW SCOs at Test Pit 402 located approximately 80 feet north of the northeast corner of the Main Building and Test Pit 406 located near the former oil house located just east of the former boiler room of the Main Building. The impacts range from 1.6 ppm to 8 ppm and are present in the upper two feet of soil. TCE concentrations at SB-411 and SB-414 range from 1.7 ppm to 9.7 ppm. However, the soil is present below the concrete floor of the Main Building, where the potential for soil vapor intrusion will be addressed via the building SSDS.
- With only two exceptions, SVOC concentrations are in the single-digit ppm range (two detections of 12 and 14 ppm) and the types and concentrations are typical of urban environments, particularly where HFM has been placed. The data does not suggest that SVOC soil source material is present.
- Metal concentrations exceed RR SCOs at the majority of the sampling locations. The types and concentrations are typical of urban environments, particularly where HFM has been placed. The data does not suggest that metals soil source material is present.
- Total PCBs slightly exceed RR SCOs in two locations (TP-412 and 415) on the southern portion of the Site. These locations are proposed to be capped by asphalt parking.
- No pesticides or PFAS compounds are present at concentrations that exceed RR SCOs.

2.1.1 Prior Remedial Events

The following remedial events are known to have occurred at the Site:

- Closure / removal of two 12,000-gallon fuel oil USTs and 199 tons of petroleum impacted soil in 2013.
- Ongoing construction of SSDSs for the buildings onsite.
- The basement soil IRM, with remedial work occurring in April 2026. The intent of the IRM was to remove CVOC soil source material identified during basement construction work

and during the SC, as described in Section 2.1. The results of that work are not believed to have a bearing on this IRM and will be detailed in a Construction Completion Report (CCR).

2.2 Nature and Extent of Contamination

Soil containing HFM is present across the Site to an approximate maximum depth of five feet below grade. This soil is underlain by native soil. The HFM contains mixed soil types, cinders, ash, coal, metal, brick, slag, and other anthropogenic materials. Various contaminants such as VOCs, SVOCs, metals, pesticides, PCBs, and PFAS were detected in the HFM. However, the results largely indicate concentrations below applicable criteria or exceedances that are typical of urban environments, for which a cover system can prevent contact and reduce mobility. The exception is the presence of CVOCs in the upper two feet of soil at two test pits on the north portion of the Site where TCE and / or PCE exceed PGW SCOs. Source removal action for those two areas are proposed herein and detailed in Section 6.

The following figures are appended to show the locations of explorations and testing from the various site investigations:

- **Figure 3** – Areas of Concern. This map shows highlights the various areas of concern based on the results of the SC.
- **Figure 4** – Sample Location Map. This map shows the locations of soil vapor / indoor air testing locations, soil boring sampling locations, test pit sampling locations, and groundwater monitoring wells installed from the various investigations between 2022 and 2026.
- **Figure 5** – HFM Evaluation (most pertinent figure with respect to this IRM). This map shows the locations of soil samples collected from the various test pits and soil borings completed during the RI. The figure also provides the results, compared to applicable SCOs.

3.0 REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) are medium-specific objectives for the protection of public health and the environment and are developed based on contaminant-specific Standards, Criteria, and Guidance (SCG) established by NYSDEC and / or NYSDOH. Since the IRM Work Plan focuses solely on soil impacts, the Work Plan was developed in consideration of the following SCGs:

- New York Codes, Rules, and regulations, Title 6 (6 NYCRR), Chapter IV, Subpart 375-6: *Remedial Program Soil Cleanup Objectives*.

The site-specific RAOs are based on the anticipated use of the Site for Restricted Residential use. The RAOs used for soil in this IRM Work Plan are:

- RAOs for Public Health Protection
 - Prevent ingestion/direct contact with contaminated soil.
 - Prevent inhalation of, or exposure to, contaminants volatilizing from contaminated soil.
- RAOs for Environmental Protection
 - Prevent migration of contaminants that would result in groundwater or surface water contamination.
 - Prevent impacts to biota due to ingestion/direct contact with contaminated soil that would cause toxicity or bioaccumulation through the terrestrial food chain.

4.0 OBJECTIVES, SCOPE, AND RATIONALE

The objective of this IRM is to remove accessible exterior CVOC source areas and eliminate potential exposure pathways, while advancing the Site toward achievement of applicable RAOs. The soil removal portion of the IRM is based on the results of RI, which identified localized CVOC impacts in soil at Test Pits 402 and 406.

The IRM will include the following:

- **Soil CVOC Source Removal** – This task consists of the excavation and removal of accessible soil exceeding PGW SCOs at Test Pits 402 and 406. To ensure that RAOs have been achieved, final excavation limits will be based on confirmatory soil sampling at the time of the soil removal action. The anticipated excavation extents are shown on **Figure 6**.
- **Installation of an Engineered Cover System** – This task consists of the construction of the site-wide cover system, discussed in detail in Section 7. The layout, extent, and components of the cover system are shown in **Figure 7**.

The IRM activities will be completed consistent with NYSDEC Part 375-6 and NYSDEC Division of Environmental Remediation: Technical Guidance for Site Investigation and Remediation (DER-10) and Green Remediation (DER-31).

5.0 KNOWN CONDITIONS AND SCOS

5.1 Known Conditions

Based on the results of the RI, the following conditions are pertinent with respect to the proposed actions:

Targeted Soil Removal Action

The need for a soil removal action is based on data from the RI, which indicated concentrations of TCE and PCE that exceed PGW SCOs at two exterior locations. Test Pit 402 is located approximately 80 feet north of the northeast corner of the Main Building and Test Pit 406 is located near the former oil house located just west of the former boiler room of the Main Building. The CVOC concentrations range from 1.6 ppm to 8 ppm and were detected in the upper two feet of soil. Based on the volume of data previously generated, the CVOC impacts are expected to be isolated and potentially related to fill placement, and the extent can readily be determined and addressed during a soil removal action. The locations of the test pits are shown on **Figure 5** and **Figure 6**. The soil removal action is described in **Section 7**.

Cover System Installation

The need for the cover system is based on the results of the RI, which indicates that HFM is present across the majority of Site. Generally, the HFM is generally present from just below the surface to no deeper than five feet below grade (refer to **Figure 5** for HFM depth contours). Based on RI sampling data, the HFM contains contaminants at concentrations exceeding RR SCOs, and therefore the cover system is necessary to prevent human exposure to potential contaminants. The cover system will be installed across the Site. The extent of the proposed elements of the system are shown on **Figure 7**. The cover system details are described in **Section 8**.

5.2 Soil Cleanup Objectives

The SCOs for the soil removal action are established in 6 NYCRR Part 375-6 for Protection of Groundwater.

The SCOs for the engineered cover system action are established in 6 NYCRR Part 375-6 for Restricted Residential Use.

6.0 SOIL REMOVAL IRM

This part of the Work Plan describes the methodologies that will be employed to remove CVOC soil source material from the locations of Test Pit 402 and Test Pit 406.

6.1 Anticipated Extent of Removal Action

The anticipated source area excavations are summarized below:

- Test Pit 402 Excavation: An excavation measuring 15-feet wide by 15-feet wide by three feet deep will be completed. The soil volume is 25 cubic yards (estimated 37.5 tons).
- Test Pit 406 Excavation: An excavation measuring 15-feet wide by 15-feet wide by three feet deep will be completed. The soil volume is 25 cubic yards (estimated 37.5 tons).

The location / extents are shown on **Figure 6**.

6.2 Soil Removal and Disposal

Soil from the excavations will be excavated with a track-mounted excavator and will either be properly stockpiled onsite or loaded directly into over-the-road waste hauler trucks. Direct loading will be contingent upon prior waste characterization and disposal site approval. Excavator operators will possess a valid and current 40-Hour HAZWOPER Certification and waste haulers will possess a valid and current NYSDEC Part 364 permit.

Based on existing data, it is expected that a contained-in determination will need to be acquired by the NYSDEC Department of Materials Management (DMM), but the soil is expected to be the non-hazardous waste that can be disposed at a non-hazardous waste landfill. This will be confirmed via waste characterization sampling per disposal facility requirements.

Soil and materials management on-Site and off-Site will be conducted consistent with the approved Excavation Work Plan (EWP) provided in **Appendix A**. Applicable content that will be followed includes: Soil Screening, Soil Staging, Material Excavation and Load Out, Material Transport Offsite, Material Recycling and Disposal Offsite, Material Reuse Onsite, Fluids Management, Cover System Installation, Backfill from Offsite Sources, Stormwater Pollution Prevention, and Excavation Contingency Plan.

Groundwater is located approximately 15 feet below grade and excavation into the saturated zone is not planned. However, if groundwater is present and its removal is required to facilitate the work, it will be pumped into a frac tank and then subsequently sampled and disposed of consistent with local, state, and federal regulations.

6.3 Post-Excavation Screening and End-Point Sampling

During the course of the soil removal action, soils will be continuously screened for visible impairment (e.g. staining), olfactory indications of impairment, evidence of non-aqueous phase liquids (NAPLs), and / or indication of detectable VOCs over 5 ppm with 10.6 eV and 11.7 eV PIDs. Such evidence is collectively referred to as “evidence of impairment” and the results will be recorded on field logs. If evidence of impairment is encountered upon reaching the anticipated excavation extents, further material will be removed until evidence of impairment is no longer observed.

Once the excavations are completed, confirmatory soil samples will be collected at a minimum frequency of one sample per every 30 linear feet of sidewall and one sample per every 900 square feet of bottom. Based on the DER-10 requirements and expectations of the soil removal efforts, the following frequencies are proposed (which are more frequent than DER-10):

Table 6-1: Confirmatory Soil Samples

Excavation	# Bottom Samples	# Sidewall Samples	Analysis
Test Pit 402	2	4	TCL VOCs
Test Pit 406	2	4	TCL VOCs

QA / QC samples will be collected at the following frequency:

Table 6-2: Confirmatory Soil QA/QC Samples

Analysis	No. Blind Duplicates	No. Matrix Spikes (MS)	No. Matrix Spike Duplicates (MSD)
TCL VOCs	1	1	1

1. Blind Duplicates are at a rate of 1 per 10 samples (10%). Only 1 required for less than 10 samples.
2. Matrix Spikes are at a rate of 1 per 20 samples (5%) per matrix. Only 1 required for less than 20 samples.
3. Matrix Spike Duplicates are at a rate of 1 per 20 samples (5%) per matrix. Only 1 required for less than 20 samples.

6.4 Additional Soil Removal and Sampling

If, after excavating to the pre-determined limits, any of the following conditions are present, the affected portion of the excavation will be extended:

1. There is physical evidence of impairment
2. Screening with a PID indicates readings greater than 5 ppm
3. Confirmatory soil sampling indicates exceedances of PGW SCOs

Expansion will include the removal of a minimum of five additional feet laterally from the affected sidewall and / or a minimum of one additional foot vertically from the affected base. Following

each expansion, additional sidewall and / or bottom confirmatory samples will be collected. This process will be repeated until there is no physical evidence of impairment (including PID readings over 5 ppm) and laboratory analytical results demonstrate that VOC concentrations are below PGW SCOs. The Department will be notified if additional sampling is required to share testing results, confirm new excavation limits, and confirm sampling types / quantities, including QA/QC samples.

Excavations near building foundations are not expected. However, if excavations are required that would undermine or destabilize a building foundation, C&S will contact the Department to discuss options to address the removal / treatment of source material.

The extents of the anticipated soil removal areas are shown on **Figure 6**.

7.0 COVER SYSTEM INSTALLATION IRM

This part of the Work Plan describes the methodologies that will be employed to construct the engineered cover system for the Site.

7.1 Soil Removal and Disposal

The current grades will be adjusted as necessary (cut / filled / built-up) so that the engineered cover system will properly meet the elevations of existing features such as ingress / egress into buildings, as well as the surfaces of the proposed hardscape features such as parking lots. The system will also be constructed in a manner so that it properly meets existing topography of adjoining properties and streets.

In cases where surplus site soil is generated, it will be either properly stockpiled onsite (per requirements in the EWP) or loaded directly into over-the-road waste hauler trucks. Direct loading will be contingent upon prior waste characterization and disposal site approval. Excavator operators will possess a valid and current 40-Hour HAZWOPER Certification and waste haulers will possess a valid and current NYSDEC Part 364 permit.

Based on existing data, if offsite soil disposal is required, it is expected to be non-hazardous and can be managed at a non-hazardous waste landfill. This will be confirmed via a waste characterization sampling per disposal facility requirements.

Soil and materials management on-Site and off-Site will be conducted consistent with the approved EWP provided in **Appendix A**. Applicable content that will be followed includes: Soil Screening, Soil Staging, Material Excavation and Load Out, Material Transport Offsite, Material Recycling and Disposal Offsite, Material Reuse Onsite, Fluids Management, Cover System Installation, Backfill from Offsite Sources, Stormwater Pollution Prevention, Excavation Contingency Plan.

Groundwater is located approximately 15 feet below grade and excavation into the saturated zone will not occur.

7.2 Engineering Controls – Design Details

The cover system will be comprised of either clean soil or hardscape surfaces and the details of each system is as follows.

Soil Cover System

The following criteria apply to the construction of the soil cover system:

- The soil cover will be a minimum of two feet of clean fill placed over a fabric demarcation layer and will be installed in areas that will be landscaped.
- Soil cover material, including any fill material brought to the site, will be tested per the approved EWP. A Request to Import / Reuse Fill or Soil form will be completed and subsequently approved by NYSDEC for each source of material imported to construct the cover system. Department approval letters and tabulated summaries of the materials imported will be provided in the CCR.
- Existing surfaces and grades will be adjusted (excavated or filled) to accommodate a minimum of two feet of soil cover system to meet proposed final grades.
- The upper six inches of soil will be of sufficient quality to maintain a vegetative cover. The soil cover will be planted with grasses, shrubs, trees, and other vegetation suited for growing in the Northeast.
- Each excavation will be surveyed prior and subsequent to soil placement to confirm that a minimum of two feet of soil cover has been placed over the demarcation layer.
- In the proposed playground, wood mulch will be placed over two feet of clean soil.
- The soil cover will extend to the hardscape cover system (buildings, asphalt pavement or concrete pavement as detailed below) and / or property boundaries.
- Onsite HFM which needs to be excavated to accommodate the soil cover system may be beneficially reused onsite by being placed below the demarcation layer and soil cover system. HFM that cannot be beneficially used below the soil cover system or hardscape cover system will be transported off-site for proper disposal.
- Existing soil stockpiles that contain surface / near-surface soils and HFM will also be tested to determine if it can be beneficially used below the soil cover system or hardscape cover system. If not, it will be transported off-site for proper disposal.

Hardscape Cover System

The hardscape cover system will be installed in areas of the Site not protected by the soil cover system. The hardscape cover system will consist of:

- Concrete building foundations and floor slabs.
- Asphalt pavement will be used in vehicle circulation and parking areas and will consist of a minimum of four inches of compacted asphalt.
- Concrete sidewalks, pads, and ramps will consist of a minimum of four-inches of Portland cement based concrete.
- The playground will consist of four inches of clean imported and compacted stone covered with two inches of poured in place styrene butadiene rubber (SBR) and polyurethane (the base mat) and a top surface coating of ethylene propylene diene monomer (EPDM). The material is wet poured and troweled onsite.

Where stone is needed for the base of the hardscape features, a Request to Import / Reuse Fill or Soil form will be completed and subsequently approved by NYSDEC for each source of material imported. Department approval letters and tabulated summaries of the materials imported will be provided in the CCR.

The following activities will be performed to ensure that the cover system is properly constructed and that activities are performed consistent with previously submitted work plans:

- A Request to Import / Reuse Fill or Soil form will be completed and subsequently approved by NYSDEC for each source of material imported to construct the cover system. Department approval letters and tabulated summaries of the materials imported will be provided in the CCR.
- C&S will observe the installation of the hardscape cover system. Pavement and concrete surfaces will be at least four inches in thickness. Grass, shrubbery, and trees will be planted in / on the soil cover system. Following completion of the cover system, C&S will perform a final inspection.
- Original and final grades, confirming the thickness and extent of the soil cover system will be shown in the final survey, which will be appended to the CCR.
- Consistent with the Community Air Monitoring Plan (CAMP, provided in Appendix D of the EWP provided as **Appendix A**), C&S will provide full-time observation of ground intrusive activities that have the potential to disturb contaminated soils. During these activities, C&S will perform upwind and downwind air monitoring for volatile organic vapors (VOVs) and dust. Work reports and CAMP logs will be prepared daily and will be provided in the CCR.

The proposed locations and extent of the soil and hardscape cover systems, as well as details depicting their typical construction are shown on **Figure 7**.

8.0 GREEN REMEDIATION EVALUATION

NYSDEC's Program Policy DER-31 / Green Remediation and DER-31 Green and Sustainable Remediation Initiative Memorandum require that green remediation concepts and techniques be considered during all stages of the remedial program including remediation, with the goal of improving the sustainability of the cleanup and documenting the net environmental benefit of any implemented green technology. Green Remediation is defined as "the practice of considering all environmental effects of remedy implementation and incorporating options to minimize the environmental footprint of cleanup actions." The use of these practices and technologies during remediation should be less disruptive to the environment, generate less waste, increase reuse and recycling, and emit fewer pollutants, including greenhouse gases (GHGs), to the atmosphere.

8.1.1 Green Remediation Components

This IRM Work Plan identifies the green remediation components that will be implemented for the subsurface soil investigation and soil source removal. The purpose of this section is to identify concepts and develop a plan to best achieve a "Green Remediation" goal for the IRM. The Green Remediation concepts considered during the development of the remedial alternatives include:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term when choosing a site remedy;
- Reducing direct and indirect GHG and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Designing buildings to meet the 2020 Energy Conservation Construction Code of New York.

Based on the type of remediation required for the Site, the principal green remediation goals for the Site are focused on the reduction of waste, the reuse of materials to extent feasible throughout the remediation process, and the selection of energy efficient equipment. The reduction in wastes and utilizing energy efficiently indirectly reduces the consumption of fossil fuels and generation of greenhouse gases.

8.1.2 Environmental Footprint Analysis

As a part of the Green Remediation, the use of an environmental footprint analysis was completed to further evaluate the impact of the planned remedy for the Site. For the purpose of analyzing the overall impact and sustainability of the planned remediation activities, C&S developed a Green Remediation Calculator that contains pertinent content of the DER-31 referenced calculators [(e.g. SEFA (Spreadsheets for Environmental Footprint Analysis, USEPA) and SiteWise™ (developed by the United States military)]. In addition to that content, C&S' Green Remediation calculator is based upon content previously created by engineers and scientists in C&S' air resources and aviation practices for use at industrial facilities to calculate emissions of GHGs, hazardous air pollutants (HAPs) and criteria pollutants for permitting, tracking, and reporting purposes; as well as for large airport construction projects to calculate potential and actual emissions from construction of terminals, taxiways, runways, etc.

Based on the anticipated elements of the implementation of the remedy, the Green Remediation Calculator was used to develop estimated values for:

- Water consumption
 - For dust suppression
 - For decontamination purposes
- GHGs
 - Emissions related to the transportation of personnel to and from the Site
 - Emissions related to the transportation and operation of on-site equipment
 - Emissions related to the manufacturing / import of backfill material and concrete
 - Emissions related to export / disposal of solid waste
 - Emissions related to the laboratory analysis of soil samples
- Renewable and non-renewable energy usage
 - Charging of environmental monitoring equipment
 - Electricity use for coring drills

Narratives regarding the various elements of the remedy, their potential impact on the environment, and strategies employed to reduce their footprint are provided in the following subsections.

8.1.3 Green Remediation Techniques

To further reduce the environmental footprint of the remediation, Green Remediation Techniques (GRTs) were identified and will be implemented.

NYSDEC DER-31 identifies a list of specific techniques which were considered during the development of this IRM Work Plan. This section further describes the techniques which were identified as being feasible to be implemented during the subsurface soil investigation and soil source removal to best achieve a green remediation goal for the Site.

8.1.4 Best Management Practices

The section describes the Best Management Practices (BMPs) which will be implemented throughout the implementation of the remedy to support green remediation goals. The following BMPs were identified for implementation:

8.1.4.1 Minimize Mobilizations

C&S will coordinate with the site contractor(s) to best schedule site activities in conjunction to minimize the number of trips to the Site for field staff, workers, and mobilizing equipment.

8.1.4.2 On-Site Equipment

Site contractor(s) will use equipment that is suitably sized to complete the anticipated sitework. The use of equipment which is undersized or oversized can decrease the efficiency of the equipment considerably. When possible, equipment will be used which can perform multiple types of tasks without mobilizing a single piece of equipment for each task. Contractors will be encouraged to utilize Clean Fuel Fleet vehicles and Tier 2 or higher Equipment and will burn ultra-low sulfur diesel fuel.

8.1.4.3 Idling of Motorized Equipment

Equipment and trucks will be shut down if left idling longer than 15-minutes.

8.1.4.4 Soil Stockpiles

Soil piles will be covered with tarps or plastic sheeting in a manner that allows for the reuse of the covers.

8.1.4.5 C&S Field Equipment

Battery-Powered Sampling Equipment – Community Air Monitoring Plan (CAMP) equipment (PIDs, Dustraks, Thiamis Antenna), PIDs, anemometers, micromanometers, and any other battery-operated equipment will be charged at the C&S facility. C&S estimated in 2024 that 28% of the

electricity used at their facility is generated on-site through use of solar panels. This practice will reduce the load on the electrical grid and allow for the use of renewable energy source, and indirectly minimizing the use of fossil fuels and reducing the generation of greenhouse gas emissions.

Waste Storage Containers – C&S uses cleaned reclaimed 5-gallon buckets and 55-gallon drums for the collection, transport, and storage of sampling wastes. The re-use of containers decreases the generation of waste.

8.1.4.6 Sustainable Laboratory Practices

C&S will submit samples to a laboratory, which implements the following sustainable practices:

- Recycles paper products and shipping materials.
- Uses energy-efficient lighting and other equipment.
- Maintains a paperless reporting and invoicing program.
- Minimizes waste through use of USEPA-approved microscale methods.

All Site activities related to the BMPs described above will be recorded and tracked on a C&S Green Remediation BMP Tracker, which is equivalent to the NYSDEC Form A, Summary of Green Remediation Metrics. The total quantities will be recorded daily and summarized in the IRM CCR.

8.1.5 Summary

The elements of the remedy with a significant environmental footprint will be tracked to document metrics and identify reductions of the environmental footprint throughout the remediation planning and implementation. The expectation of the environmental footprint from these significant elements are shown in **Table 8-1** and **Table 8-3**. The inputs and outputs from C&S' Green Remediation Calculator are provided in **Appendix B**. The actual environmental footprint results will be summarized in the IRM CCR.

The following table provides a summary of the significant elements needed for the soil source removal and cover system installation.

Table 8-1: Soil Source Removal Metrics

Item / Activity	Volume / Unit	Note
Diesel Use	260 gallons	Operation of excavation equipment, transportation of materials / equipment / solid waste / workers
Gasoline Use	16 gallons	Transportation of workers

Item / Activity	Volume / Unit	Note
Grid Electricity Usage	0.0074 megawatt-hours	Charging of CAMP stations
Public Water Use	500 gallons	CAMP implementation and equipment decontamination
Construction Materials	63.8 tons	Import of backfill and polyethylene sheeting for soil stockpiles
Solid waste to off-site non-hazardous waste landfill	100 tons	Disposal of excavated soil. Disposal of general refuse including PPE, disposable sampling equipment, etc.
Off-site laboratory analyses	12 samples	Confirmatory soil samples following excavation

Table 8-2: Cover System Installation Metrics

Item / Activity	Volume / Unit	Note
Diesel Use	11,713 gallons	Operation of excavation equipment, transportation of materials / equipment / solid waste / workers
Gasoline Use	318 gallons	Transportation of workers
Grid Electricity Usage	0.222 megawatt-hours	Charging of CAMP stations
Public Water Use	5,000 gallons	CAMP implementation and equipment decontamination
Construction Materials	15,500 tons	Import of gravel backfill, soil, concrete, asphalt, and polyethylene sheeting for soil stockpiles
Playground Surfacing	1,200 square feet	SBR and EPDM layers
Solid waste to off-site non-hazardous waste landfill	4,800 tons	Disposal of excavated soil (assumes removal to 2' across one-acre @ 1.5 tons per cubic yard)
Solid waste to off-site non-hazardous waste landfill	0.1 tons	Disposal of general refuse including PPE, disposable sampling equipment, etc.

The following table provides a summary of the combined environmental footprint.

Table 8-3: Environmental Footprint Summary

Activity	Total Energy (MMBtu)	lbs CO ₂	lbs NO _x	lbs SO _x	lbs PM	lbs HAPs
Soil Source Removal	67	10,104	63	14	44	120
Cover System Installation	1,190,668	26,466,882	103,527	270,499	42,373	34,551
Total	1,190,735	26,476,986	103,590	270,513	42,417	34,671

MMBtu – Metric Million British Thermal Unit, CO₂ – Carbon Dioxide, lbs – Pounds, NO_x – Nitrogen Oxides, SO_x – Sulfur Oxides, PM – Particulate Matter, HAP – Hazardous Air Pollutants

9.0 QUALITY ASSURANCE AND QUALITY CONTROL PROTOCOLS

To ensure that suitable and verifiable data results are obtained from the information collected at the Site, QA / QC procedures are detailed in this section. The project Quality Assurance Project Plan (QAPP) is provided in **Appendix C**.

9.1 Sampling Methods

Sampling procedures will be conducted consistent with the NYSDEC *Sampling Guidelines and Protocols Manual*. Collection of representative samples will include the following procedures:

- Ensuring that the sample taken is representative of the material being sampled;
- Using proper sampling, handling and preservation techniques;
- Properly identifying the collected samples and documenting their collection in field records;
- Maintaining chain-of-custody; and
- Properly preserving samples after collection.

9.1.1 Soil Sampling

Soil sampling will be performed using two methods: (1) field screening using a PID; and (2) collection and laboratory analysis of grab samples. Whether soil samples are collected from direct-push rig sleeves or split-spoons, they will be collected as grab samples that are split and placed into jars supplied by the laboratory as well as into individual zip-lock bags for screening. Screening soil samples will be allowed to sit in sealed zip-lock bag for a short period of time (minimum of five minutes). Head space measurements will then be taken from each zip-lock bag. To prevent cross-contamination, zip-lock bags will not be reused and will be properly disposed. Calibration of electronic field screening equipment will be completed daily and will be done to manufacturer's specifications. Daily calibration procedures will be documented on the daily field logs.

As detailed in the *Sampling Guidelines and Protocols Manual*, grab samples will be placed in appropriate sized plastic or glass jars, as provided by the lab. Sample jars will immediately be placed on ice in a cooler. The soil will be analyzed on a standard turnaround time.

The following are the container and holding requirements for solids.

Table 9-1: Solid Samples – Container and Holding Requirements

Analysis	Analytical Method(s)	Sample Volume	Containers	Preservation Requirements	Maximum Holding Time
VOCs	Method 8260	5 – 15 grams	(3) 40 mL amber VOA vial and Terracore sampler	MeOH, Cool to 4°C	48 hours to freeze, 14 days to analyze
SVOCs and 1,4-dioxane	Method 8270	4 oz.	4-ounce amber glass with Teflon-lined cap	Cool to 4°C (no preservative)	14 days to extract
Metals	Method 6010, 7471, 9010	4 oz.	4-ounce amber glass with Teflon-lined cap	Cool to 4°C (no preservative)	180 days (Hg 28 days; CN 14 days)
Pesticides	Method 8081	4 oz	4-ounce amber glass with Teflon-lined cap	Cool to 4°C (no preservative)	14 days to extract
Herbicides	Method 8151	4 oz	4-ounce amber glass with Teflon-lined cap	Cool to 4°C (no preservative)	14 days to extract
PCBs	Method 8082	4 oz.	4-ounce amber glass with Teflon-lined cap	Cool to 4°C (no preservative)	365 days to extract
PFAS	Method 1633	8 oz.	8-ounce plastic	Cool to 4°C (no preservative)	90 days to extract

9.2 Analytical Procedures

9.2.1 Laboratory Analysis

Laboratory analysis will be conducted by a third-party laboratory that is accredited by the NYSDOH Environmental Laboratory Accreditation Program (ELAP). Laboratory analytical methods will include the most current NYSDEC Analytical Services Protocol (ASP).

Soil samples will be sent to a certified laboratory and will be analyzed in accordance with EPA SW-846 methodology. Samples may be analyzed for a combination of the following contaminants.

- TCL VOCs (USEPA Method 8260)
- TCL SVOCs (USEPA Method 8270)
- TCL Pesticides (USEPA 8081)
- TCL Herbicides (USEPA 8151)
- PCBs (USEPA 8082)
- TAL Metals including cyanide and mercury (USEPA Method 6010, 7471, and 9010)
- 1,4-dioxane (USEPA Method 8270)
- PFAS (USEPA Method 1633).

ASP Category B deliverables will be requested to be used in a third-party data validation. The EDD for all media will be uploaded to the EQulS software application.

9.2.2 Data Usability

A Data Usability Summary Report (DUSR) will be prepared by a third-party data consultant using the most recent methods and criteria from the USEPA. The DUSR will assess all sample analytical data, blanks, duplicates and laboratory control samples and evaluate the completeness of the data package.

9.3 Custody Procedures

As outlined in *NYSDEC Sampling Guidelines and Protocols*, a sample is in custody under the following conditions:

- It is in your actual possession;
- It is in your view after being in your physical possession;
- It was in your possession and then you locked or sealed it up to prevent tampering; or
- It is in a secure area.

The environmental professional will maintain all chain-of-custody documents that will be completed for all samples that will leave the Site to be tested in the laboratory.

10.0 HEALTH AND SAFETY

To verify the safety of the workers and the local community during the performance of the work, monitoring practices of the work environment will be in place during all phases of the IRM. A Health and Safety Plan (HASP) was prepared that details procedures for maintaining safe working conditions and minimizing the potential for exposure to hazardous material. The HASP is provided in the EWP in **Appendix A**.

11.0 COMMUNITY AIR MONITORING

Continuous air monitoring will be performed during all ground-intrusive activities.

The monitoring will include real-time sampling for respirable dust / particulates and airborne VOCs. The specifics of the air monitoring procedures and criteria are detailed in the CAMP in the EWP provided in **Appendix A**.

The intent of the CAMP is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air. The action levels specified within the Plan require increased monitoring, corrective actions to abate emissions, and / or work shutdown.

CAMP reports summarizing the daily tasks / activities, figures depicting each work area, monitoring station locations, and data tables will be provided to the NYSDEC and NYSDOH on a daily basis (at a minimum). Any exceedances of CAMP action levels and corrective measures taken will be reported to the Departments immediately (i.e., as early as possible), will be documented in the daily CAMP report, and will include a description of the corrective actions taken.

12.0 REPORTING

Based on the results of the work described above, a CCR will be prepared to describe the methodologies and results of the IRM. The report will describe:

- Investigative methods;
- Observations and findings;
- Comparison of soil sample results to applicable SCOs;
- Source removal methods;
- End-point sampling results;
- Comparison of end-point sample results to applicable SCOs; and
- Results of the CAMP.

If there are any deviations from the approved Work Plan, a detailed description of the deviation(s) will be included in the CCR.

The document will be submitted to the NYSDEC for review and approval.

13.0 SCHEDULE

Below is an anticipated schedule of milestones for implementation of the Soil IRM.

Table 13-1: Schedule

Date	Task
April 24, 2026	Draft IRM Work Plan Submission
May 15, 2026	Draft IRM Work Plan Comments Received from NYSDEC / NYSDOH, 30-day Public Comment Period Begins
June 17, 2026	Final IRM Work Plan Submission
June 22, 2026	IRM Begins
September 1, 2026	Completion of IRM
October 1, 2026	Draft CCR Submission
November 1, 2026	Draft CCR Comments Received from NYSDEC / NYSDOH
November 15, 2026	Final CCR Submission

14.0 REFERENCES

6 NYCRR Part 371, Identification and Listing of Hazardous Wastes, NYSDEC

Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1, as amended, NYSDEC, 1998

Contract Drawings for the Construction of Sub-Slab Depressurization System for Coventry Commons, 130-132 Harrison Street, Newark, New York, prepared by C&S Engineers, August 30, 2024

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

DER-31 – Green Remediation, January 2011, NYSDEC

Geologic Map of New York, Donald Fisher, Yngvar Isachsen, Lawrence Rickard, John Broughton, Terry Offield, 1961. Obtained from <https://nysm.nysed.gov/publications/map-chart-series>

How to Evaluate Alternative Cleanup Technologies for Underground Storage Tank Sites, A Guide for Corrective Action Plan Reviewers, Chapter II – Soil Vapor Extraction, EPA 510-B-17-003, United States Environmental Protection Agency, October 2017.

Interim Guidance on the Destruction and Disposal of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) and Materials Containing Perfluoroalkyl and Polyfluoroalkyl Substances, USEPA, April 2024.

Phase I Environmental Site Assessment, 130 and 132 Harrison Street, Newark, New York, prepared by LaBella, July 2019

Phase I Environmental Site Assessment, Coventry Commons, 130-132 Harrison Street, Newark, New York 14513, prepared by Ravi Engineering and Land Surveying, P.C., July 20, 2022

Phase I Environmental Site Assessment, Coventry Commons, 130-132 Harrison Street, Newark, New York, prepared by C&S Engineers, November 2024

Phase II Environmental Site Assessment, Coventry Commons, 130-132 Harrison Street, Newark, New York, prepared by C&S Engineers, November 2024

Phase II Environmental Site Assessment, Proposed Coventry Commons, 130-132 Harrison Street, Newark, New York, prepared by C&S Engineers, January 2023

Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs, NYSDEC, April 2023



Site Characterization Report, 130-132 Harrison Street, Newark, New York, prepared by C&S Engineers, October 2025

Site Characterization Work Plan, Coventry Commons, 130-132 Harrison Street, Newark, New York, prepared by C&S Engineers, April 2025

Site Characterization Work Plan Addendum, Coventry Commons, 130-132 Harrison Street, Newark, New York, prepared by C&S Engineers, August 2025

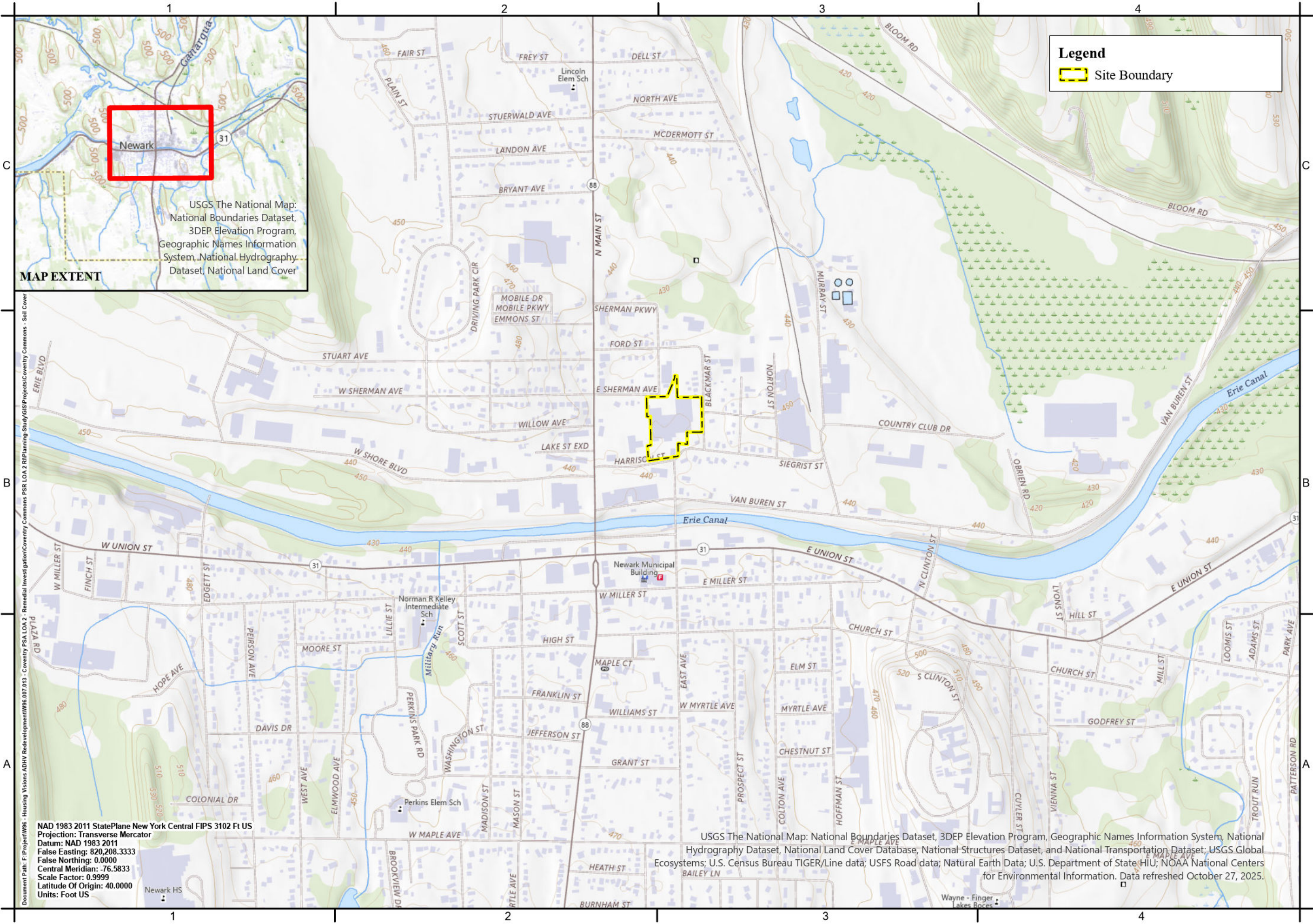
Sub-slab Depressurization System Operations and Maintenance Plan for Coventry Commons, 130-132 Harrison Street, Newark, New York, prepared by C&S Engineers, August 2024

Surficial Geologic Map of New York, Ernest Muller and Donald Caldwell, 1986. Obtained from <https://nysm.nysed.gov/publications/map-chart-series>

Vapor Intrusion Assessment (VIA), 130-132 Harrison Street, Newark, New York, prepared by Ravi Engineering and Land Surveying, P.C., August 29, 2022.

Various Petroleum Bulk Storage and Spill documents obtain from NYSDEC Freedom of Information Law Request

Figures



Legend
Site Boundary



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0 800
Feet
1 inch equals 800 feet

Cover System IRM Work Plan
Coventry Commons - NYSDEC Site No. 859036
130-132 Harrison Street, Newark, New York

PROJECT NO: W96.007.013
DATE: April 2026
SCALE: AS SHOWN
DRAWN BY: CND
DESIGNED BY: CND
CHECKED BY: MLW

**SITE
LOCATION**

Figure 1

NAD 1983 2011 StatePlane New York Central FIPS 3102 Ft US
Projection: Transverse Mercator
Datum: NAD 1983 2011
False Easting: 820,208.3333
False Northing: 0.0000
Central Meridian: -76.5833
Scale Factor: 0.9999
Latitude Of Origin: 40.0000
Units: Foot US

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road data; Natural Earth Data; U.S. Department of State HIU; NOAA National Centers for Environmental Information. Data refreshed October 27, 2025.



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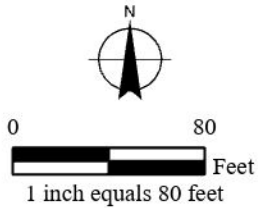
NAD 1983 2011 StatePlane New York Central FIPS 3102 Ft US
Projection: Transverse Mercator
Datum: NAD 1983 2011
False Easting: 820,208.3333
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Central Meridian: -76.5833
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Latitude Of Origin: 40.0000
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Legend

- Site Boundary
- Demolished Building



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Cover System IRM Work Plan
Coventry Commons - NYSDEC Site No. 859036
130-132 Harrison Street, Newark, New York

PROJECT NO:	W96.007.010
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**SITE
MAP**

Figure 2



Document Path: F:\Project\W96 - Housing Visions ADHV Redevelopment\W96.007.013 - Coventry PSA\LOA 2 - Remedial Investigation\Coventry Commons - Soil Cover IRM.aprx
NAD 1983 2011 StatePlane New York Central FIPS 3102 Ft US
Projection: Transverse Mercator
Datum: NAD 1983 2011
False Easting: 820,208.3333
False Northing: 0.0000
Central Meridian: -76.5833
Scale Factor: 0.9999
Latitude Of Origin: 40.0000
Units: Foot US

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Sources: Esri, Vantor, Airbus DS, USGS, NOAA, NASA, CGLAR, N Robinson, NCEAS, NLS, OS, NIMA, Geodastatys, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, and the GIS user community

Legend

Site Boundary

Known AOCs

Former Boiler Room & Extent of Basement

Potential AOCs

Former Machine Shop

Former Tinware & Cosmetic Operations

Demolished Buildings

Former Junkyard

Former Oil House

Former Rail Spurs

Former Fuel Oil USTs

Former Buried Holding Tank

Former Elevator

Approximate Location of Obsolete Utility Pipes

Historic Fill Material (HFM) known or suspected across majority of the Site.

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1 inch equals 80 feet

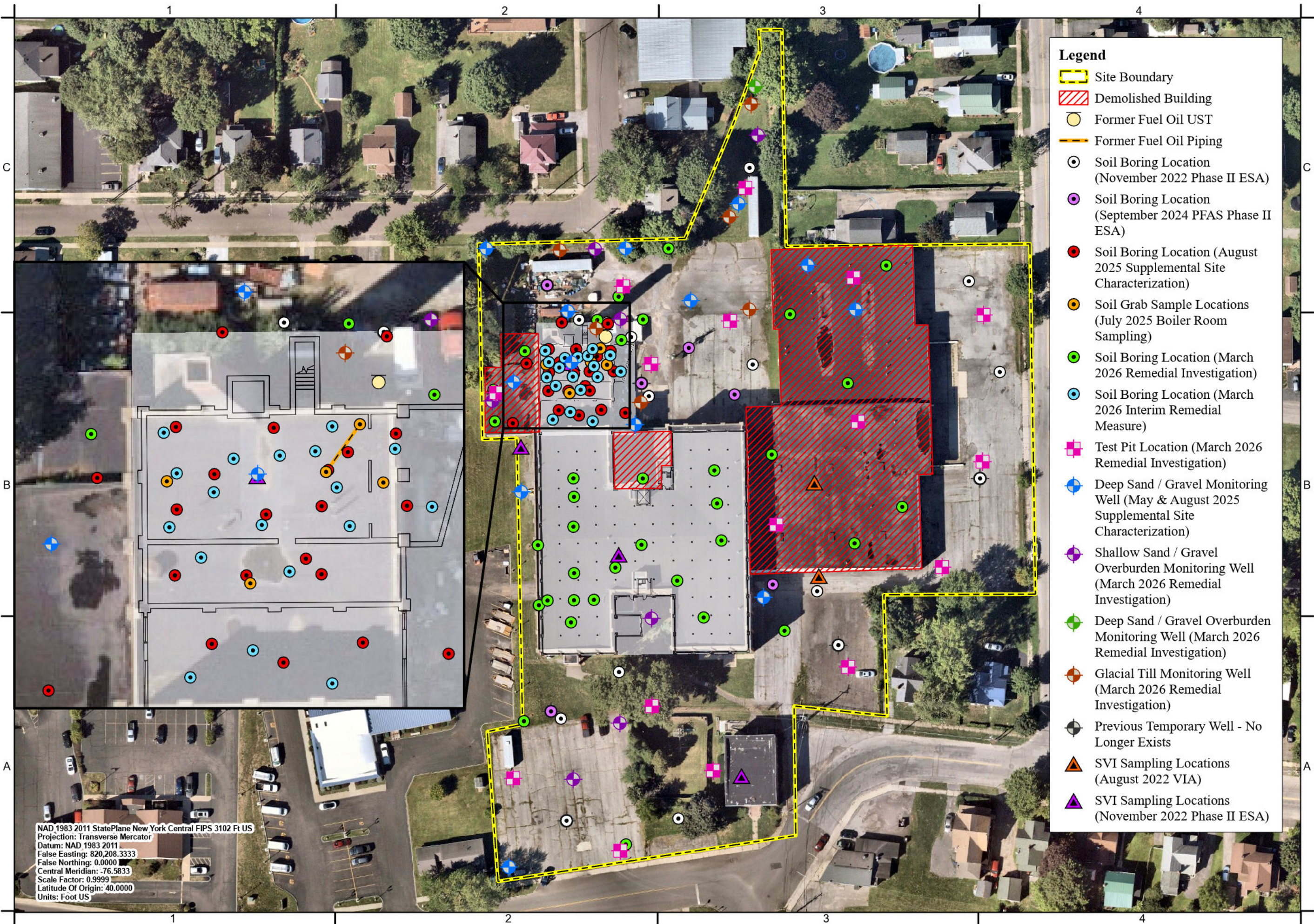
Coventry Commons IRM Work Plan
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130-132 Harrison Street, Newark, New York

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AREAS OF CONCERN

Figure 3

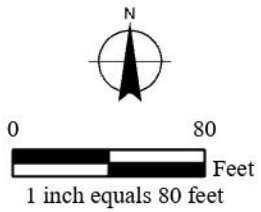


NAD 1983 2011 StatePlane New York Central FIPS 3102 Ft US
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Central Meridian: -76.5833
Scale Factor: 0.9999
Latitude Of Origin: 40.0000
Units: Foot US

- Legend**
- Site Boundary
 - Demolished Building
 - Former Fuel Oil UST
 - Former Fuel Oil Piping
 - Soil Boring Location (November 2022 Phase II ESA)
 - Soil Boring Location (September 2024 PFAS Phase II ESA)
 - Soil Boring Location (August 2025 Supplemental Site Characterization)
 - Soil Grab Sample Locations (July 2025 Boiler Room Sampling)
 - Soil Boring Location (March 2026 Remedial Investigation)
 - Soil Boring Location (March 2026 Interim Remedial Measure)
 - Test Pit Location (March 2026 Remedial Investigation)
 - Deep Sand / Gravel Monitoring Well (May & August 2025 Supplemental Site Characterization)
 - Shallow Sand / Gravel Overburden Monitoring Well (March 2026 Remedial Investigation)
 - Deep Sand / Gravel Overburden Monitoring Well (March 2026 Remedial Investigation)
 - Glacial Till Monitoring Well (March 2026 Remedial Investigation)
 - Previous Temporary Well - No Longer Exists
 - SVI Sampling Locations (August 2022 VIA)
 - SVI Sampling Locations (November 2022 Phase II ESA)



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Cover System IRM Work Plan
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**SAMPLE
LOCATION
MAP**

Figure 4

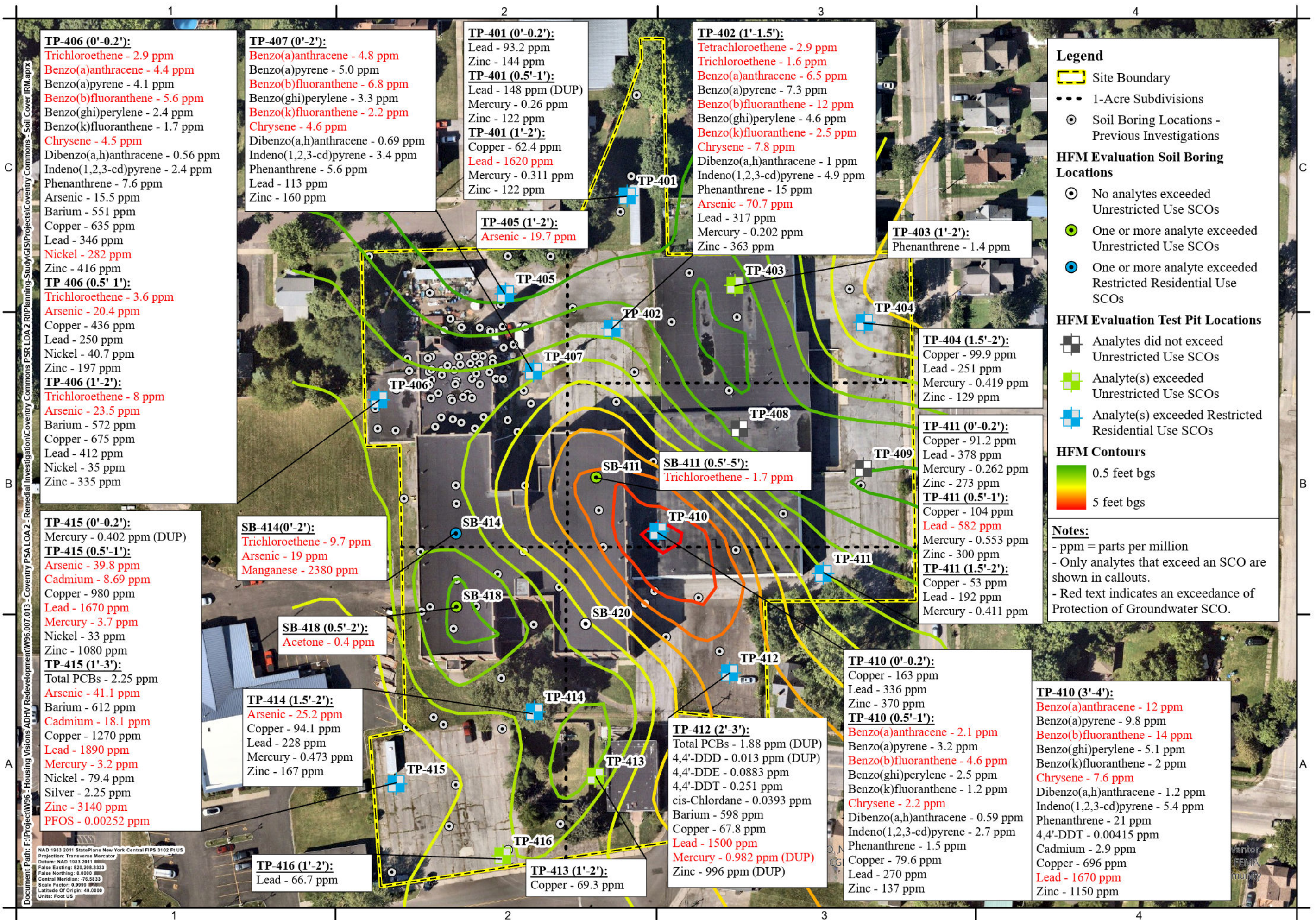
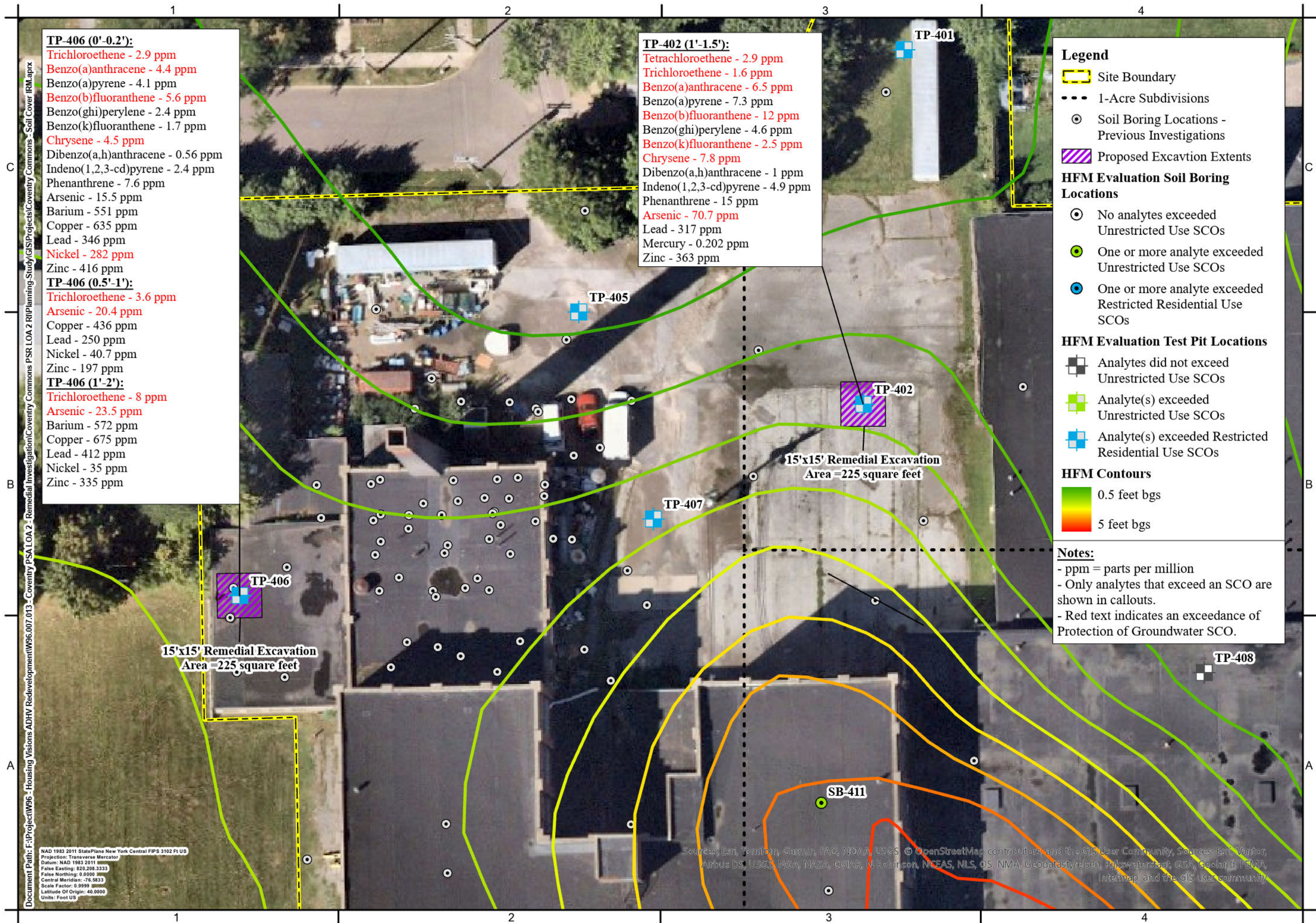


Figure 5



TP-406 (0'-0.2'):
Trichloroethene - 2.9 ppm
Benzo(a)anthracene - 4.4 ppm
Benzo(a)pyrene - 4.1 ppm
Benzo(b)fluoranthene - 5.6 ppm
Benzo(ghi)perylene - 2.4 ppm
Benzo(k)fluoranthene - 1.7 ppm
Chrysene - 4.5 ppm
Dibenzo(a,h)anthracene - 0.56 ppm
Indeno(1,2,3-cd)pyrene - 2.4 ppm
Phenanthrene - 7.6 ppm
Arsenic - 15.5 ppm
Barium - 551 ppm
Copper - 635 ppm
Lead - 346 ppm
Nickel - 282 ppm
Zinc - 416 ppm
TP-406 (0.5'-1'):
Trichloroethene - 3.6 ppm
Arsenic - 20.4 ppm
Copper - 436 ppm
Lead - 250 ppm
Nickel - 40.7 ppm
Zinc - 197 ppm
TP-406 (1'-2'):
Trichloroethene - 8 ppm
Arsenic - 23.5 ppm
Barium - 572 ppm
Copper - 675 ppm
Lead - 412 ppm
Nickel - 35 ppm
Zinc - 335 ppm

TP-402 (1'-1.5'):
Tetrachloroethene - 2.9 ppm
Trichloroethene - 1.6 ppm
Benzo(a)anthracene - 6.5 ppm
Benzo(a)pyrene - 7.3 ppm
Benzo(b)fluoranthene - 12 ppm
Benzo(ghi)perylene - 4.6 ppm
Benzo(k)fluoranthene - 2.5 ppm
Chrysene - 7.8 ppm
Dibenzo(a,h)anthracene - 1 ppm
Indeno(1,2,3-cd)pyrene - 4.9 ppm
Phenanthrene - 15 ppm
Arsenic - 70.7 ppm
Lead - 317 ppm
Mercury - 0.202 ppm
Zinc - 363 ppm

Legend

- Site Boundary
- 1-Acre Subdivisions
- Soil Boring Locations - Previous Investigations
- Proposed Excavation Extents

HFM Evaluation Soil Boring Locations

- No analytes exceeded
Unrestricted Use SCOs
- One or more analyte exceeded
Unrestricted Use SCOs
- One or more analyte exceeded
Restricted Residential Use SCOs

HFM Evaluation Test Pit Locations

- Analytes did not exceed
Unrestricted Use SCOs
- Analyte(s) exceeded
Unrestricted Use SCOs
- Analyte(s) exceeded Restricted
Residential Use SCOs

HFM Contours

- 0.5 feet bgs
- 5 feet bgs

Notes:

- ppm = parts per million
- Only analytes that exceed an SCO are shown in callouts.
- Red text indicates an exceedance of Protection of Groundwater SCO.

C&S
COMPANIES

C&S Engineers, Inc.
499 Col. Eileen Collins Blvd.
Syracuse, New York 13212
Phone: 315-455-9000
Fax: 315-455-9007
www.ccs.com

0 30
Feet
1 inch equals 30 feet

Cover System IRM Work Plan
Coventry Commons - NYSDEC Site No. 859036
130-132 Harrison Street, Newark, New York

PROJECT NO: W96.007.013
DATE: April 2026
SCALE: AS SHOWN
DRAWN BY: CND
DESIGNED BY: CND
CHECKED BY: MLW

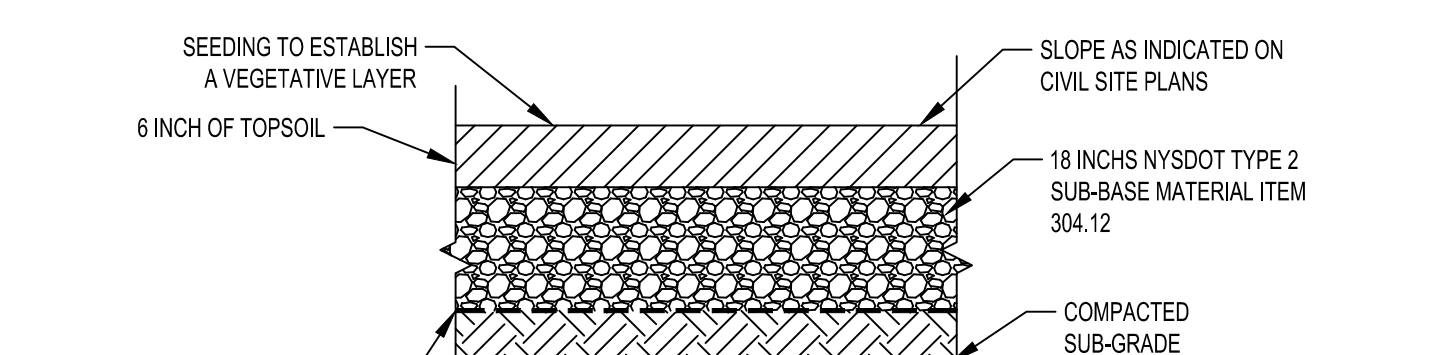
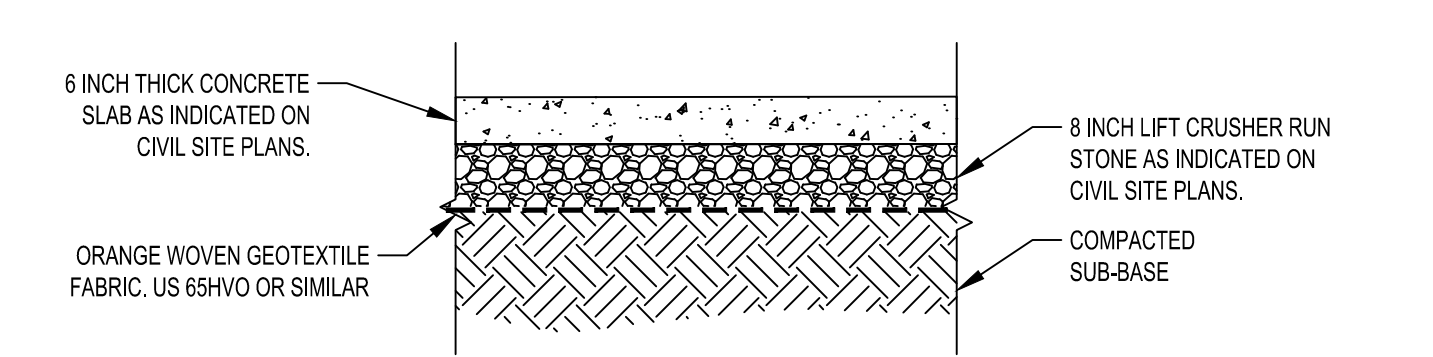
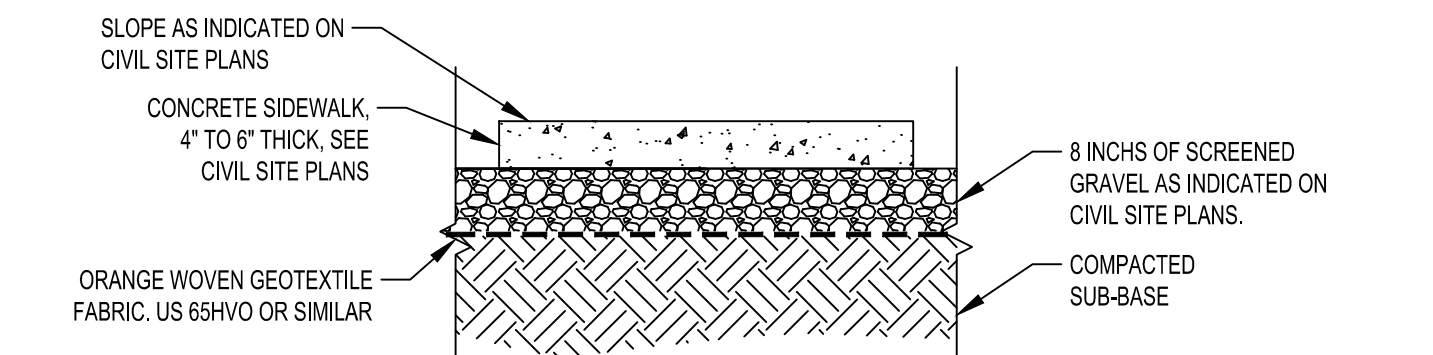
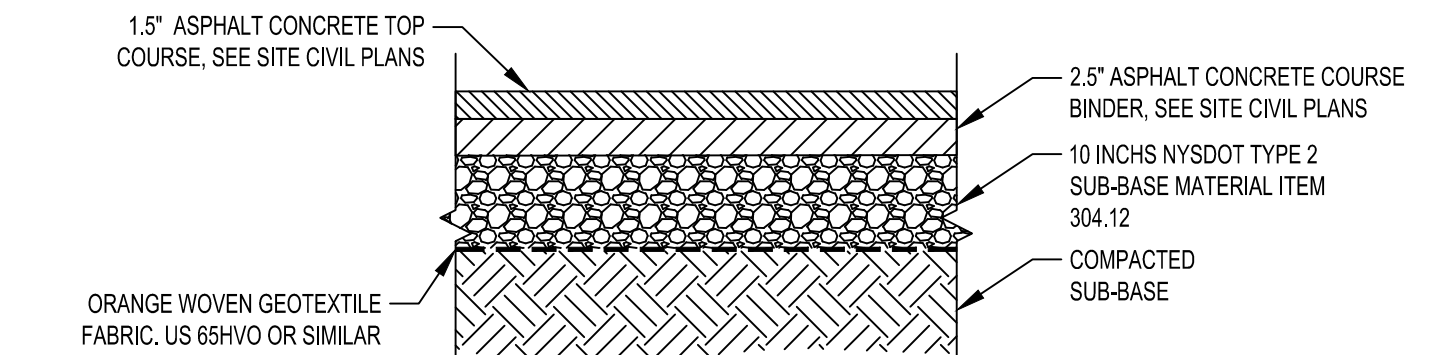
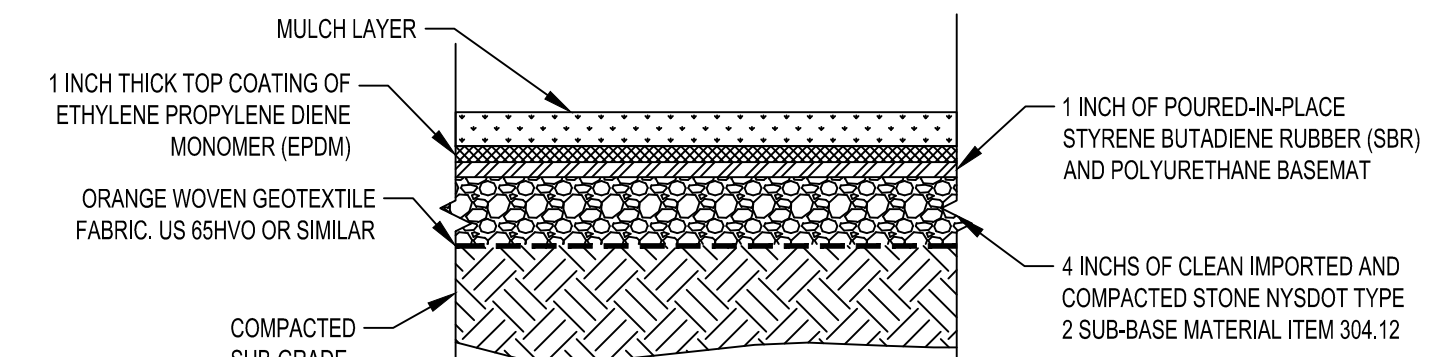
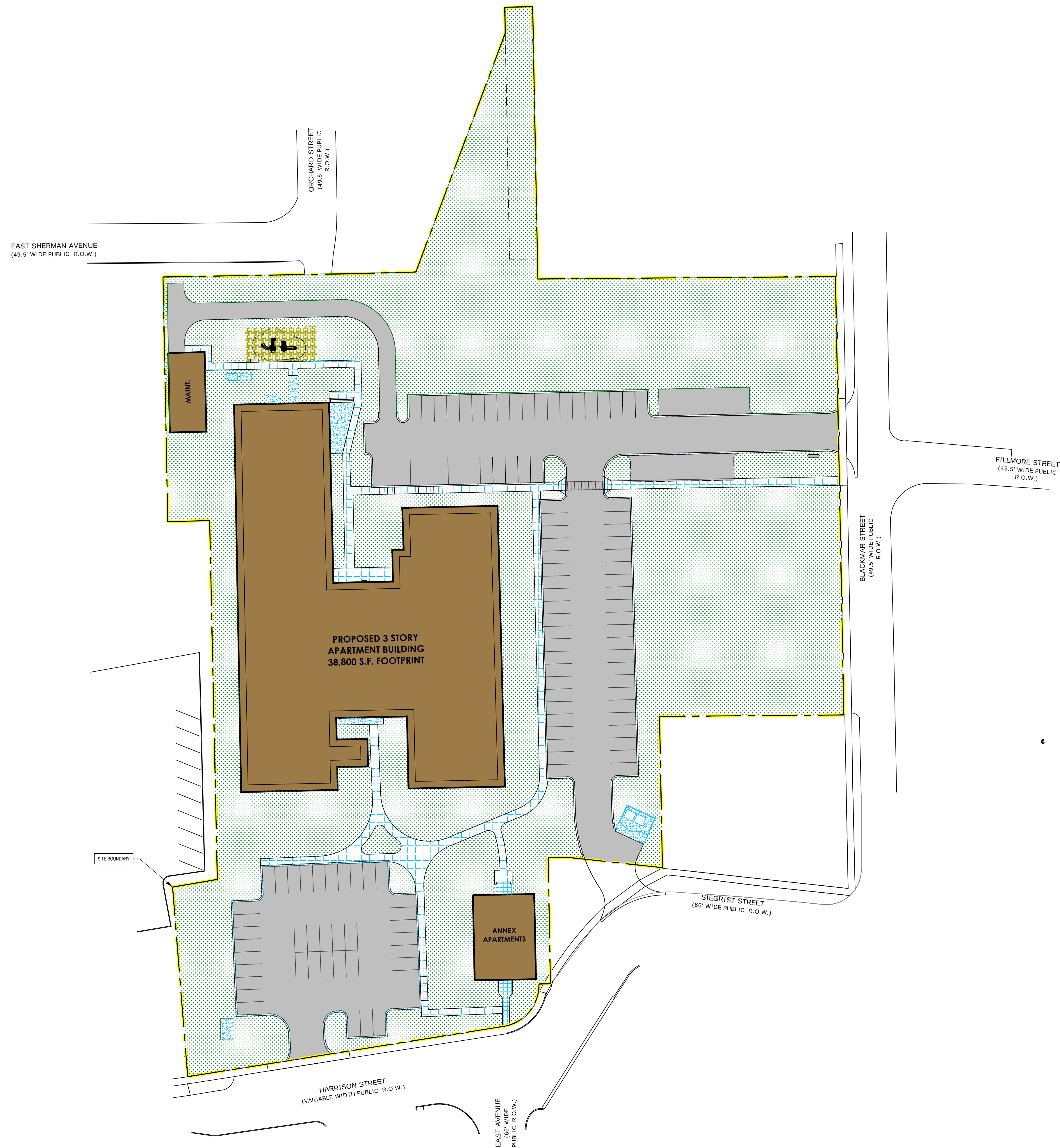
**PROPOSED
EXCAVATION
EXTENTS**

Figure 6

NAD 1983 2011 StatePlane New York Central FIPS 3102 Ft US
Projection: Transverse Mercator
Datum: NAD 1983 2011
False Easting: 620,208.3333
False Northing: 0.0000
Central Meridian: -76.5833
Scale Factor: 0.9999
Latitude Of Origin: 40.0000
Units: Foot US

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Sources: Esri, Vantor, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatasysteme, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, and the GIS user community

Apr 24, 2026 - 1:19pm
F:\Project\W96 - Housing Visions ADIV Redevelopment\W96.007.013 - Coventry PSA.LOA - Remedial Investigation\Coventry Commons FSR.LOA - 2 R\Planning Study\CADD\Sheet Files\Coventry Commons Cover System Plan.dwg



LEGEND:	
	GRASS - 119,078 SF
	FOUNDATION - 42,567 SF
	ASPHALT - 51,060 SF
	SIDEWALK - 8,465 SF
	CONCRETE / CURB - 3,325 SF
	PLAYGROUND - 1,202 SF

C&S Engineers, Inc.
499 Col. Eileen Collins Blvd.
Syracuse, New York 13212
Phone: 315-455-2000
Fax: 315-455-9667
www.cscos.com

CERTIFICATE OF AUTHORIZATION # 0021365

0 40' 80' Feet
1 inch equals 40'

Cover System IRM Work Plan
Coventry Commons - NYSDEC Site No. 859036
130-132 Harrison Street, Newark, New York

MARK	DATE	DESCRIPTION
REVISIONS		
PROJECT NO: W96.007.013		
DATE: April 2026		
DRAWN BY: NJC		
DESIGNED BY:		
CHECKED BY: MLW		
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW		

ENGINEERED
COVER
SYSTEM

Figure 7

Tables

Table 1
Historic Fill Material Data Summary

LOCATION				TP-401-0-0.2		TP-401-0.5-1		DUP-031726-01		TP-401-1-2		TP-402-1-1.5		TP-403-1-2		TP-404-1.5-2		TP-405-1-2		TP-406-0-0.2	
SAMPLING DATE				3/17/2026		3/17/2026		3/17/2026		3/17/2026		3/17/2026		3/16/2026		3/16/2026		3/17/2026		3/17/2026	
LAB SAMPLE ID				L2614656-01		L2614656-02		L2614656-11		L2614656-03		L2614656-04		L2614294-01		L2614294-02		L2614656-05		L2614656-06	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Volatile Organics by EPA 5035/8260																					
1,1,1-Trichloroethane	0.68	0.68	100	ND	0.0006	ND	0.00067	ND	0.00059	ND	0.00074	ND	0.02	ND	0.00055	ND	0.00085	ND	0.00089	ND	0.024
1,1,2,2-Tetrachloroethane				ND	0.0006	ND	0.00067	ND	0.00059	ND	0.00074	ND	0.02	ND	0.00055	ND	0.00085	ND	0.00089	ND	0.024
1,1,2-Trichloroethane				ND	0.0012	ND	0.0013	ND	0.0012	ND	0.0015	ND	0.04	ND	0.0011	ND	0.0017	ND	0.0018	ND	0.047
1,1-Dichloroethane	0.27	0.27	47	ND	0.0012	ND	0.0013	ND	0.0012	ND	0.0015	ND	0.04	ND	0.0011	ND	0.0017	ND	0.0018	ND	0.047
1,1-Dichloroethene	0.24	0.33	0.98	ND	0.0012	ND	0.0013	ND	0.0012	ND	0.0015	ND	0.04	ND	0.0011	ND	0.0017	ND	0.0018	ND	0.047
1,2,4-Trichlorobenzene				ND	0.0024	ND	0.0027	ND	0.0024	ND	0.003	ND	0.08	ND	0.0022	ND	0.0034	ND	0.0036	ND	0.095
1,2,4-Trimethylbenzene	5.9	5.9	100	ND	0.0024	ND	0.0027	ND	0.0024	ND	0.003	ND	0.08	ND	0.0022	ND	0.0034	ND	0.0036	ND	0.095
1,2-Dibromo-3-chloropropane				ND	0.0036	ND	0.004	ND	0.0035	ND	0.0044	ND	0.12	ND	0.0033	ND	0.0051	ND	0.0054	ND	0.14
1,2-Dibromoethane				ND	0.0012	ND	0.0013	ND	0.0012	ND	0.0015	ND	0.04	ND	0.0011	ND	0.0017	ND	0.0018	ND	0.047
1,2-Dichlorobenzene	1.1	1.1	100	ND	0.0024	ND	0.0027	ND	0.0024	ND	0.003	ND	0.08	ND	0.0022	ND	0.0034	ND	0.0036	ND	0.095
1,2-Dichloroethane	0.02	0.02	5.8	ND	0.0012	ND	0.0013	ND	0.0012	ND	0.0015	ND	0.04	ND	0.0011	ND	0.0017	ND	0.0018	ND	0.047
1,2-Dichloropropane				ND	0.0012	ND	0.0013	ND	0.0012	ND	0.0015	ND	0.04	ND	0.0011	ND	0.0017	ND	0.0018	ND	0.047
1,3,5-Trimethylbenzene	3.1	3.1	100	ND	0.0024	ND	0.0027	ND	0.0024	ND	0.003	ND	0.08	ND	0.0022	ND	0.0034	ND	0.0036	ND	0.095
1,3-Dichlorobenzene	2.6	2.6	38	ND	0.0024	ND	0.0027	ND	0.0024	ND	0.003	ND	0.08	ND	0.0022	ND	0.0034	ND	0.0036	ND	0.095
1,4-Dichlorobenzene	1.8	1.8	24	ND	0.0024	ND	0.0027	ND	0.0024	ND	0.003	ND	0.08	ND	0.0022	ND	0.0034	ND	0.0036	ND	0.095
2-Butanone	0.1	0.1	100	ND	0.012	ND	0.013	ND	0.012	ND	0.015	ND	0.4	ND	0.011	ND	0.017	ND	0.018	ND	0.47
2-Hexanone				ND	0.012	ND	0.013	ND	0.012	ND	0.015	ND	0.4	ND	0.011	ND	0.017	ND	0.018	ND	0.47
4-Methyl-2-pentanone				ND	0.012	ND	0.013	ND	0.012	ND	0.015	ND	0.4	ND	0.011	ND	0.017	ND	0.018	ND	0.47
Acetone	0.03	0.03	100	ND	0.012	ND	0.013	ND	0.012	ND	0.015	ND	0.4	ND	0.011	0.024	0.017	ND	0.018	ND	0.47
Benzene	0.06	0.06	3.7	ND	0.0006	ND	0.00067	ND	0.00059	ND	0.00074	ND	0.02	ND	0.00055	ND	0.00085	ND	0.00089	ND	0.024
Bromodichloromethane				ND	0.0006	ND	0.00067	ND	0.00059	ND	0.00074	ND	0.02	ND	0.00055	ND	0.00085	ND	0.00089	ND	0.024
Bromoform				ND	0.0048	ND	0.0054	ND	0.0047	ND	0.0059	ND	0.16	ND	0.0044	ND	0.0068	ND	0.0072	ND	0.19
Bromomethane				ND	0.0024	ND	0.0027	ND	0.0024	ND	0.003	ND	0.08	ND	0.0022	ND	0.0034	ND	0.0036	ND	0.095
Carbon disulfide				ND	0.012	ND	0.013	ND	0.012	ND	0.015	ND	0.4	ND	0.011	ND	0.017	ND	0.018	ND	0.47
Carbon tetrachloride	0.76	0.76	7.1	ND	0.0012	ND	0.0013	ND	0.0012	ND	0.0015	ND	0.04	ND	0.0011	ND	0.0017	ND	0.0018	ND	0.047
Chlorobenzene	4.5	4.5	100	ND	0.0006	ND	0.00067	ND	0.00059	ND	0.00074	ND	0.02	ND	0.00055	ND	0.00085	ND	0.00089	ND	0.024
Chloroethane				ND	0.0024	ND	0.0027	ND	0.0024	ND	0.003	ND	0.08	ND	0.0022	ND	0.0034	ND	0.0036	ND	0.095
Chloroform	0.37	0.37	24	ND	0.0018	ND	0.002	ND	0.0018	ND	0.0022	0.014J	0.06	ND	0.0016	ND	0.0026	ND	0.0027	0.03J	0.071
Chloromethane				ND	0.0048	ND	0.0054	ND	0.0047	ND	0.0059	ND	0.16	ND	0.0044	ND	0.0068	ND	0.0072	ND	0.19
cis-1,2-Dichloroethene	0.19	0.19	41	ND	0.0012	ND	0.0013	ND	0.0012	ND	0.0015	0.027J	0.04	ND	0.0011	ND	0.0017	ND	0.0018	ND	0.047
cis-1,3-Dichloropropene				ND	0.0006	ND	0.00067	ND	0.00059	ND	0.00074	ND	0.02	ND	0.00055	ND	0.00085	ND	0.00089	ND	0.024
Cyclohexane				ND	0.012	ND	0.013	ND	0.012	ND	0.015	ND	0.4	ND	0.011	ND	0.017	ND	0.018	0.027J	0.47
Dibromochloromethane				ND	0.0012	ND	0.0013	ND	0.0012	ND	0.0015	ND	0.04	ND	0.0011	ND	0.0017	ND	0.0018	ND	0.047
Dichlorodifluoromethane				ND	0.012	ND	0.013	ND	0.012	ND	0.015	ND	0.4	ND	0.011	ND	0.017	ND	0.018	ND	0.47
Ethylbenzene	1	1	76	ND	0.0012	ND	0.0013	ND	0.0012	ND	0.0015	ND	0.04	ND	0.0011	ND	0.0017	ND	0.0018	ND	0.047
Freon-113				ND	0.0048	ND	0.0054	ND	0.0047	ND	0.0059	ND	0.16	ND	0.0044	ND	0.0068	ND	0.0072	ND	0.19
Isopropylbenzene				ND	0.0012	ND	0.0013	ND	0.0012	ND	0.0015	ND	0.04	ND	0.0011	ND	0.0017	ND	0.0018	ND	0.047
Methyl Acetate				ND	0.0048	ND	0.0054	ND	0.0047	ND	0.0059	ND	0.16	ND	0.0044	ND	0.0068	ND	0.0072	ND	0.19
Methyl cyclohexane				ND	0.0048	ND	0.0054	ND	0.0047	ND	0.0059	ND	0.16	ND	0.0044	ND	0.0068	ND	0.0072	0.12J	0.19
Methyl tert butyl ether	0.1	0.1	100	ND	0.0024	ND	0.0027	ND	0.0024	ND	0.003	ND	0.08	ND	0.0022	ND	0.0034	ND	0.0036	ND	0.095
Methylene chloride	0.05	0.05	81	ND	0.006	ND	0.0067	ND	0.0059	ND	0.0074	ND	0.2	ND	0.0055	ND	0.0085	ND	0.0089	ND	0.24
n-Butylbenzene	18	18	100	ND	0.0012	ND	0.0013	ND	0.0012	ND	0.0015	ND	0.04	ND	0.0011	ND	0.0017	ND	0.0018	ND	0.047
n-Propylbenzene	5	5	100	ND																	

Table 1
Historic Fill Material Data Summary

LOCATION				TP-401-0-0.2		TP-401-0.5-1		DUP-031726-01		TP-401-1-2		TP-402-1-1.5		TP-403-1-2		TP-404-1.5-2		TP-405-1-2		TP-406-0-0.2	
SAMPLING DATE				3/17/2026		3/17/2026		3/17/2026		3/17/2026		3/17/2026		3/16/2026		3/16/2026		3/17/2026		3/17/2026	
LAB SAMPLE ID				L2614656-01		L2614656-02		L2614656-11		L2614656-03		L2614656-04		L2614294-01		L2614294-02		L2614656-05		L2614656-06	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Volatile Organics by EPA 5035/8260-TIC																					
No Tentatively Identified Compounds				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	0
Cyclopentane				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclotrisiloxane, Hexamethyl-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethane, 1,1-Difluoro-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				0.00268J	0	0.00309J	0	0.00292J	0	0.00373J	0	0.102J	0	0.00226J	0	0.00409J	0	0.00437J	0	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TIC Compounds				0.00268J	0	0.00309J	0	0.00292J	0	0.00373J	0	0.102J	0	0.00226J	0	0.00409J	0	0.00437J	0	-	-
Semivolatile Organics by GC/MS																					
1,2,4,5-Tetrachlorobenzene				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
1,4-Dioxane	0.1	0.1	5.7	ND	0.029	ND	0.029	ND	0.029	ND	0.028	ND	0.03	ND	0.027	ND	0.032	ND	0.03	ND	0.03
2,3,4,6-Tetrachlorophenol				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
2,4,5-Trichlorophenol				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
2,4,6-Trichlorophenol				ND	0.12	ND	0.12	ND	0.12	ND	0.11	ND	0.12	ND	0.11	ND	0.13	ND	0.12	ND	0.12
2,4-Dichlorophenol				ND	0.17	ND	0.17	ND	0.17	ND	0.17	ND	0.18	ND	0.16	ND	0.19	ND	0.18	ND	0.18
2,4-Dimethylphenol				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
2,4-Dinitrophenol				ND	0.92	ND	0.93	ND	0.92	ND	0.89	ND	0.96	ND	0.86	ND	1	ND	0.96	ND	0.98
2,4-Dinitrotoluene				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
2,6-Dinitrotoluene				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
2-Chloronaphthalene				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
2-Chlorophenol				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
2-Methylnaphthalene				ND	0.23	ND	0.23	ND	0.23	ND	0.22	0.54	0.24	0.048J	0.21	ND	0.26	ND	0.24	0.68	0.24
2-Methylphenol	0.33	0.33	100	ND	0.19	ND	0.19	ND	0.19	ND	0.18	0.054J	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
2-Nitroaniline				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
2-Nitrophenol				ND	0.41	ND	0.42	ND	0.42	ND	0.4	ND	0.43	ND	0.39	ND	0.46	ND	0.43	ND	0.44
3,3'-Dichlorobenzidine				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
3-Methylphenol/4-Methylphenol	0.33	0.33	100	ND	0.28	ND	0.28	ND	0.28	ND	0.27	0.2J	0.29	ND	0.26	ND	0.31	ND	0.29	0.036J	0.29
3-Nitroaniline				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
4,6-Dinitro-o-cresol				ND	0.5	ND	0.5	ND	0.5	ND	0.48	ND	0.52	ND	0.46	ND	0.56	ND	0.52	ND	0.53
4-Bromophenyl phenyl ether				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
4-Chloroaniline				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
4-Chlorophenyl phenyl ether				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
4-Nitroaniline				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
4-Nitrophenol				ND	0.27	ND	0.27	ND	0.27	ND	0.26	ND	0.28	ND	0.25	ND	0.3	ND	0.28	ND	0.28
Acenaphthene	20	98	100	ND	0.15	ND	0.15	0.033J	0.15	ND	0.15	0.24	0.16	0.1J	0.14	ND	0.17	ND	0.16	1	0.16
Acenaphthylene	100	365	100	0.04J	0.15	ND	0.15	ND	0.15	0.029J	0.15	2.2	0.16	ND	0.14	ND	0.17	ND	0.16	0.67	0.16
Acetophenone				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	0.041J	0.2
Anthracene	100	1000	100	0.05J	0.12	ND	0.12	0.15	0.12	0.038J	0.11	1.5	0.12	0.31	0.11	ND	0.13	0.12	0.12	1.6	0.12
Atrazine				ND	0.15	ND	0.15	ND	0.15	ND	0.15	ND	0.16	ND	0.14	ND	0.17	ND	0.16	ND	0.16
Benzaldehyde				ND	0.25	ND	0.25	ND	0.25	ND	0.24	ND	0.26	ND	0.24	ND	0.28	ND	0.26	0.12J	0.27
Benzo(a)anthracene	1	1	1.4	0.23	0.12	0.16	0.12	0.37	0.12	0.22	0.11	6.5	0.12	0.64	0.11	0.045J	0.13	0.54	0.12	4.4	0.12
Benzo(a)pyrene	1	22	1	0.26	0.15	0.19	0.15	0.32	0.15	0.22	0.15	7.3	0.16	0.48	0.14	ND	0.17	0.47	0.16	4.1	0.16
Benzo(b)fluoranthene	1	2.1	1.4	0.36	0.12	0.25	0.12	0.43	0.12	0.32	0.11	12	0.6	0.73	0.11	0.067J	0.13	0.62	0.12	5.6	0.12
Benzo(ghi)perylene	0.64	1000	4.9	0.18	0.15	0.12J	0.15	0.19	0.15	0.15	0.15	4.6	0.16	0.29	0.14	0.03J	0.17	0.28	0.16	2.4	0.16
Benzo(k)fluoranthene	0.8	2	4.9	0.12	0.12	0.097J	0.12	0.16	0.12	0.093J	0.11	2.5	0.12	0.19	0.11	ND	0.13	0.21	0.12	1.7	0.12
Biphenyl				ND	0.44	ND	0.44	ND	0.44	ND	0.42	0.13J	0.46	ND	0.41	ND	0.49	ND	0.46	0.12J	0.46
Bis(2-chloroethoxy)methane				ND	0.21	ND	0.21	ND	0.21	ND	0.2	ND	0.22	ND	0.19	ND	0.23	ND	0.22	ND	0.22
Bis(2-chloroethyl)ether				ND	0.17	ND	0.17	ND	0.17	ND	0.17	ND									

Table 1

Historic Fill Material Data Summary

LOCATION				TP-401-0-0.2		TP-401-0.5-1		DUP-031726-01		TP-401-1-2		TP-402-1-1.5		TP-403-1-2		TP-404-1.5-2		TP-405-1-2		TP-406-0-0.2	
SAMPLING DATE				3/17/2026		3/17/2026		3/17/2026		3/17/2026		3/17/2026		3/16/2026		3/17/2026		3/17/2026		3/17/2026	
LAB SAMPLE ID				L2614656-01		L2614656-02		L2614656-11		L2614656-03		L2614656-04		L2614294-01		L2614294-02		L2614656-05		L2614656-06	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Hexachlorobutadiene				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
Hexachlorocyclopentadiene				ND	0.55	ND	0.55	ND	0.55	ND	0.53	ND	0.57	ND	0.51	ND	0.61	ND	0.57	ND	0.58
Hexachloroethane				ND	0.15	ND	0.15	ND	0.15	ND	0.15	ND	0.16	ND	0.14	ND	0.17	ND	0.16	ND	0.16
Indeno(1,2,3-cd)pyrene	0.5	6.6	1.4	0.16	0.15	0.12J	0.15	0.19	0.15	0.14J	0.15	4.9	0.16	0.28	0.14	ND	0.17	0.28	0.16	2.4	0.16
Isophorone				ND	0.17	ND	0.17	ND	0.17	ND	0.17	ND	0.18	ND	0.16	ND	0.19	ND	0.18	ND	0.18
n-Nitrosodi-n-propylamine				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
Naphthalene	12	12	100	0.033J	0.19	ND	0.19	0.027J	0.19	ND	0.18	0.89	0.2	0.14J	0.18	ND	0.21	ND	0.2	0.61	0.2
NDPA/DPA				ND	0.15	ND	0.15	ND	0.15	ND	0.15	ND	0.16	ND	0.14	ND	0.17	ND	0.16	ND	0.16
Nitrobenzene	0.08	0.08	1.8	ND	0.038	ND	0.039	ND	0.038	ND	0.037	ND	0.04	ND	0.036	ND	0.043	ND	0.04	ND	0.041
p-Chloro-m-cresol				ND	0.19	ND	0.19	ND	0.19	ND	0.18	ND	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
Pentachlorophenol	0.8	0.8	1.3	ND	0.15	ND	0.15	ND	0.15	ND	0.15	ND	0.16	ND	0.14	ND	0.17	ND	0.16	ND	0.16
Phenanthrene	1.1	1000	4.9	0.31	0.12	0.15	0.12	0.6	0.12	0.16	0.11	15	0.6	1.4	0.11	0.052J	0.13	0.45	0.12	7.6	0.12
Phenol	0.33	0.33	100	ND	0.19	ND	0.19	ND	0.19	ND	0.18	0.18J	0.2	ND	0.18	ND	0.21	ND	0.2	ND	0.2
Pyrene	64	1000	100	0.44	0.12	0.28	0.12	0.58	0.12	0.35	0.11	15	0.6	1.1	0.11	0.082J	0.13	0.88	0.12	6.1	0.12
Semivolatile Organics by GC/MS-TIC																					
No Tentatively Identified Compounds				-	-	ND	0	-	-	-	-	-	-	-	-	ND	0	-	-	-	-
Tetrachloroethene				-	-	-	-	-	-	-	-	5.47NJ	0	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	1.47J	0	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	0.745J	0	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	1.32J	0	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	0.668J	0	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	0.152J	0	-	-	-	-	1.95J	0
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alcohol				-	-	-	-	-	-	-	-	0.565J	0	-	-	-	-	-	-	-	-
Unknown Alkane				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Amide				0.255J	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Benzene				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Cyclohexene				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Ketone				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.735J	0
Unknown Ketone				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Ketone				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.752J	0
Unknown Organic Acid				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.06J	0
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	3.2J	0	-	-	-	-	-	-	0.885J	0
Unknown PAH				-	-	-	-	-	-	-	-	2.98J	0	-	-	-	-	-	-	2.24J	0
Unknown PAH				-	-	-	-	-	-	-	-	1.89J	0	-	-	-	-	-	-	0.811J	0
Unknown PAH				-	-	-	-	-	-	-	-	1.67J	0	-	-	-	-	-	-	1.35J	0
Unknown PAH				-	-	-	-	-	-	-	-	0.968J	0	0.306J	0	-	-	-	-	1.18J	0
Unknown PAH				-	-	-	-	-	-	-	-	1.05J	0	0.194J	0	-	-	-	-	2.21J	0
Unknown PAH				-	-	-	-	-	-	-	-	2.69J	0	-	-	-	-	-	-	0.857J	0
Unknown PAH				-	-	-	-	-	-	-	-	6.35J	0	0.204J	0	-	-	-	-	1.85J	0
Unknown PAH				-	-	-	-	-	-	-	-	2.18J	0	0.159J	0	-	-	-	-	1.85J	0
Unknown PAH				0.184J	0	-	-	0.219J	0	0.154J	0	-	-	-	-	-	-	0.292J	0	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.884J	0
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Thiophene				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.06J	0
Total TIC Compounds				0.439J	0	-	-	0.219J	0	0.154J	0	33.2J	0	1.02J	0	-	-	0.292J	0	19.7J	0

Table 1

Historic Fill Material Data Summary

LOCATION				TP-401-0-0.2		TP-401-0.5-1		DUP-031726-01		TP-401-1-2		TP-402-1-1.5		TP-403-1-2		TP-404-1.5-2		TP-405-1-2		TP-406-0-0.2	
SAMPLING DATE				3/17/2026		3/17/2026		3/17/2026		3/17/2026		3/17/2026		3/16/2026		3/16/2026		3/17/2026		3/17/2026	
LAB SAMPLE ID				L2614656-01		L2614656-02		L2614656-11		L2614656-03		L2614656-04		L2614294-01		L2614294-02		L2614656-05		L2614656-06	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Petroleum Hydrocarbon Quantitation																					
TPH (C9-C36)				102	37.7	33J	38.7	22J	37.7	94.5	35.8	631	40.5	31J	36.3	17.6J	42.3	18.2J	39.6	259	40.1
Polychlorinated Biphenyls by GC																					
Aroclor 1016	0.1	3.2	1	-	-	-	-	-	-	ND	0.0525	-	-	ND	0.0509	-	-	-	-	-	-
Aroclor 1221	0.1	3.2	1	-	-	-	-	-	-	ND	0.0525	-	-	ND	0.0509	-	-	-	-	-	-
Aroclor 1232	0.1	3.2	1	-	-	-	-	-	-	ND	0.0525	-	-	ND	0.0509	-	-	-	-	-	-
Aroclor 1242	0.1	3.2	1	-	-	-	-	-	-	ND	0.0525	-	-	ND	0.0509	-	-	-	-	-	-
Aroclor 1248	0.1	3.2	1	-	-	-	-	-	-	ND	0.0525	-	-	ND	0.0509	-	-	-	-	-	-
Aroclor 1254	0.1	3.2	1	-	-	-	-	-	-	ND	0.0525	-	-	ND	0.0509	-	-	-	-	-	-
Aroclor 1260	0.1	3.2	1	-	-	-	-	-	-	ND	0.0525	-	-	ND	0.0509	-	-	-	-	-	-
Aroclor 1262	0.1	3.2	1	-	-	-	-	-	-	ND	0.0525	-	-	ND	0.0509	-	-	-	-	-	-
Aroclor 1268	0.1	3.2	1	-	-	-	-	-	-	ND	0.0525	-	-	ND	0.0509	-	-	-	-	-	-
PCBs, Total	0.1	3.2	1	-	-	-	-	-	-	ND	0.0525	-	-	ND	0.0509	-	-	-	-	-	-
Organochlorine Pesticides by GC																					
4,4'-DDD	0.0033	14	5	-	-	-	-	-	-	ND	0.00176	-	-	ND	0.0017	-	-	-	-	-	-
4,4'-DDE	0.0033	9.3	3.4	-	-	-	-	-	-	0.00281	0.00176	-	-	0.00322	0.0017	-	-	-	-	-	-
4,4'-DDT	0.0033	135	3.8	-	-	-	-	-	-	0.00215	0.00176	-	-	0.00252	0.0017	-	-	-	-	-	-
Aldrin	0.0048	0.19	0.044	-	-	-	-	-	-	ND	0.00176	-	-	ND	0.0017	-	-	-	-	-	-
Alpha-BHC	0.02	0.02	0.18	-	-	-	-	-	-	ND	0.000734	-	-	ND	0.000708	-	-	-	-	-	-
Beta-BHC	0.021	0.09	0.18	-	-	-	-	-	-	ND	0.00176	-	-	ND	0.0017	-	-	-	-	-	-
Chlordane				-	-	-	-	-	-	ND	0.0147	-	-	ND	0.0142	-	-	-	-	-	-
cis-Chlordane	0.014	4.5	0.65	-	-	-	-	-	-	ND	0.0022	-	-	ND	0.00212	-	-	-	-	-	-
Delta-BHC	0.04	0.1	100	-	-	-	-	-	-	ND	0.00176	-	-	ND	0.0017	-	-	-	-	-	-
Dieldrin	0.005	0.1	0.075	-	-	-	-	-	-	0.00151	0.0011	-	-	ND	0.00106	-	-	-	-	-	-
Endosulfan I	4.3	65	35	-	-	-	-	-	-	ND	0.00176	-	-	ND	0.0017	-	-	-	-	-	-
Endosulfan II	4.3	44	35	-	-	-	-	-	-	ND	0.00176	-	-	ND	0.0017	-	-	-	-	-	-
Endosulfan sulfate	4.3	47	35	-	-	-	-	-	-	ND	0.000734	-	-	ND	0.000708	-	-	-	-	-	-
Endrin	0.014	0.06	5.3	-	-	-	-	-	-	ND	0.000734	-	-	ND	0.000708	-	-	-	-	-	-
Endrin aldehyde				-	-	-	-	-	-	ND	0.0022	-	-	ND	0.00212	-	-	-	-	-	-
Endrin ketone				-	-	-	-	-	-	ND	0.00176	-	-	ND	0.0017	-	-	-	-	-	-
Heptachlor	0.013	0.38	0.53	-	-	-	-	-	-	ND	0.000881	-	-	ND	0.00085	-	-	-	-	-	-
Heptachlor epoxide				-	-	-	-	-	-	ND	0.0033	-	-	ND	0.00319	-	-	-	-	-	-
Lindane	0.025	0.05	0.21	-	-	-	-	-	-	ND	0.000734	-	-	ND	0.000708	-	-	-	-	-	-
Methoxychlor				-	-	-	-	-	-	ND	0.0033	-	-	ND	0.00319	-	-	-	-	-	-
Toxaphene				-	-	-	-	-	-	ND	0.033	-	-	ND	0.0319	-	-	-	-	-	-
trans-Chlordane				-	-	-	-	-	-	ND	0.0022	-	-	ND	0.00212	-	-	-	-	-	-
Chlorinated Herbicides by GC																					
2,4,5-T				-	-	-	-	-	-	ND	0.187	-	-	ND	0.18	-	-	-	-	-	-
2,4,5-TP (Silvex)	3.8			-	-	-	-	-	-	ND	0.187	-	-	ND	0.18	-	-	-	-	-	-
2,4-D				-	-	-	-	-	-	ND	0.187	-	-	ND	0.18	-	-	-	-	-	-
Total Metals																					
Aluminum, Total				6070	8.97	6490	8.83	5760	9.1	5770	8.68	6860	9.63	6040	8.71	7550	10.2	5570	9.42	4770	9.39
Antimony, Total				ND	4.49	ND	4.42	ND	4.55	ND	4.34	ND	4.82	ND	4.36	ND	5.12	ND	4.71	ND	4.7
Arsenic, Total	13	16	16	6.22	0.897	5.94	0.883	6.92	0.91	7.23	0.868	70.7	0.963	5.43	0.871	9.44	1.02	19.7	0.942	15.5	0.939
Barium, Total	410	820	410	66.4	0.897	62.3	0.883	47.8	0.91	64.4	0.868	73.3	0.963	38.8	0.871	134	1.02	89.9	0.942	551	0.939
Beryllium, Total	4.4	47	43	0.35J	0.449	0.34J	0.442	0.296J	0.455	0.334J	0.434	0.472J	0.482	0.304J	0.436	0.532	0.512	0.195J	0.471	0.728	0.47
Cadmium, Total	2.5	7.5	2.5	ND	0.897	0.191J	0.883	0.142J	0.91	ND	0.868	0.754J	0.963	ND	0.871	0.2J	1.02	0.264J	0.942	0.852J	0.939
Calcium, Total				73400	8.97	31200	8.83	27500	9.1	44300	8.68	25900	9.63	57000	8.71	16300	10.2	3200	9.42	38800	9.39
Chromium, Total				8.44	0.897	9.22	0.883	8	0.91	8.92	0.868	30.6	0.963	6.64	0.871	11.2	1.02	9.59	0.942	17.7	0.939
Chromium, Hexavalent	1	19	1	-	-	-	-	-	-	ND	0.901	-	-	ND	0.88	-	-	-	-	-	-
Cobalt, Total				4.85	1.79	4.93	1.77	4.02	1.82	5.23	1.74	6.55	1.93	4.88	1.74	6.57	2.05	6.78	1.88	6.11	1.88
Copper, Total	50	1720	280	31.7	0.897	41.9	0.883	19.1	0.91	62.4	0.868	47.2	0.963	22.5	0.871	99.9	1.02	35.7	0.942	635	0.939
Cyanide, Total	2.3	40	13	-	-	-	-	-	-	ND	1.1	-	-	ND	1	-	-	-	-	-	-
Iron, Total				13200	22.4	13000	22.1	11200	22.7	12200	21.7	19800	24.1	13100	21.8	15200	25.6	49800	236	15600	23.5
Lead, Total	63	450	400	93.2	4.49	114	4.42	148	4.55	1620	4.34	317	4.82	16.6	4.36	251	5.12	16.8	4.71	346	4.7
Magnesium, Total				38300	8.97	14000	8.83	14300	9.1	17900	8.68	15600	9.63	13800	8.71	4760	10.2	2110	9.42	12900	9.39
Manganese, Total	1600	2000	2000	792	0.897	503	0.883	363	0.91	522	0.868	604	0.963	771	0.871	981	1.02	200	0.942	335	0.939
Mercury, Total	0.18	0.73	0.3	0.126	0.084	0.26	0.078	0.121	0.08	0.311	0.078	0.202	0.097	ND	0.071	0.419	0.095	ND	0.092	0.078J	0.094
Nickel, Total	30	130	320	12.4	2.24	10.3	2.21	8.16	2.27	10.2	2.17										

Table 1
Historic Fill Material Data Summary

LOCATION				TP-401-0-0.2		TP-401-0.5-1		DUP-031726-01		TP-401-1-2		TP-402-1-1.5		TP-403-1-2		TP-404-1.5-2		TP-405-1-2		TP-406-0-0.2	
SAMPLING DATE				3/17/2026		3/17/2026		3/17/2026		3/17/2026		3/17/2026		3/16/2026		3/16/2026		3/17/2026		3/17/2026	
LAB SAMPLE ID				L2614656-01		L2614656-02		L2614656-11		L2614656-03		L2614656-04		L2614294-01		L2614294-02		L2614656-05		L2614656-06	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Perfluorinated Alkyl Acids by EPA 1633																					
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11CI-PF3OUdS)				-	-	-	-	-	-	ND	0.000801	-	-	ND	0.0008	-	-	-	-	-	-
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)				-	-	-	-	-	-	ND	0.000801	-	-	ND	0.0008	-	-	-	-	-	-
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)				-	-	-	-	-	-	ND	0.000801	-	-	ND	0.0008	-	-	-	-	-	-
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)				-	-	-	-	-	-	ND	0.000801	-	-	ND	0.0008	-	-	-	-	-	-
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)				-	-	-	-	-	-	ND	0.005	-	-	ND	0.005	-	-	-	-	-	-
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)				-	-	-	-	-	-	ND	0.005	-	-	ND	0.005	-	-	-	-	-	-
3-Perfluoropropyl Propanoic Acid (3:3FTCA)				-	-	-	-	-	-	ND	0.001	-	-	ND	0.001	-	-	-	-	-	-
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)				-	-	-	-	-	-	ND	0.000801	-	-	ND	0.0008	-	-	-	-	-	-
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9CI-PF3ONS)				-	-	-	-	-	-	ND	0.000801	-	-	ND	0.0008	-	-	-	-	-	-
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)				-	-	-	-	-	-	ND	0.000801	-	-	ND	0.0008	-	-	-	-	-	-
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)				-	-	-	-	-	-	ND	0.002	-	-	ND	0.002	-	-	-	-	-	-
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)				-	-	-	-	-	-	ND	0.002	-	-	ND	0.002	-	-	-	-	-	-
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)				-	-	-	-	-	-	ND	0.0004	-	-	ND	0.0004	-	-	-	-	-	-
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)				-	-	-	-	-	-	ND	0.0004	-	-	ND	0.0004	-	-	-	-	-	-
Perfluoro-3-Methoxypropanoic Acid (PFMPA)				-	-	-	-	-	-	ND	0.0004	-	-	ND	0.0004	-	-	-	-	-	-
Perfluoro-4-Methoxybutanoic Acid (PFMBA)				-	-	-	-	-	-	ND	0.0004	-	-	ND	0.0004	-	-	-	-	-	-
Perfluorobutanesulfonic Acid (PFBS)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluorobutanoic Acid (PFBA)				-	-	-	-	-	-	ND	0.000801	-	-	ND	0.0008	-	-	-	-	-	-
Perfluorodecanesulfonic Acid (PFDS)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluorodecanoic Acid (PFDA)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluorododecanesulfonic Acid (PFDoS)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluorododecanoic Acid (PFDoA)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluoroheptanesulfonic Acid (PFHpS)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluoroheptanoic Acid (PFHpA)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluorohexanesulfonic Acid (PFHxS)				-	-	-	-	-	-	0.000054J	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluorohexanoic Acid (PFHxA)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluorononanesulfonic Acid (PFNS)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluorononanoic Acid (PFNA)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluorooctanesulfonamide (PFOSA)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.001	0.044	-	-	-	-	-	-	0.000398	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluorooctanoic Acid (PFOA)	0.00066	0.0008	0.033	-	-	-	-	-	-	0.000174J	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluoropentanesulfonic Acid (PFPeS)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluoropentanoic Acid (PFPeA)				-	-	-	-	-	-	ND	0.0004	-	-	ND	0.0004	-	-	-	-	-	-
Perfluorotetradecanoic Acid (PFTeDA)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluorotridecanoic Acid (PFTrDA)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-
Perfluoroundecanoic Acid (PFUnA)				-	-	-	-	-	-	ND	0.0002	-	-	ND	0.0002	-	-	-	-	-	-

Notes:
Results and soil cleanup objectives (SCO) in mg/kg
Highlighted color indicates the respective use SCO(s) exceeded. Use type SCOs are listed from left to right from most restrictive to least restrictive.
Highlighted grey indicates the analyte was not detected but the reporting limit was above the least restrictive SCO.
Blank space indicates that a SCO does not exist
Duplicates are listed after their respective parent sample.
"J" indicates estimated concentration
"I" indicates the lower value for the two columns has been reported due to obvious interference.
"P" indicates the RPD between the results for the two columns exceeds the method-specified criteria.
"NJ" indicates presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
"- " indicates that sample was not anlyazed for that parameter
"ND" indicates not detected above the associated reporting limit.

Table 1

Historic Fill Material Data Summary

LOCATION				TP-406-0.5-1		TP-406-1-2		TP-407-0-2		TP-408-1-2		TP-409-1-2		TP-410-0.0.2		TP-410-0.5-1		TP-410-3-4		TP-411-0-0.2	
SAMPLING DATE				3/17/2026		3/17/2026		3/17/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026	
LAB SAMPLE ID				L2614656-07		L2614656-08		L2614656-09		L2614294-03		L2614294-04		L2614294-05		L2614294-06		L2614294-07		L2614294-08	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Volatile Organics by EPA 5035/8260																					
1,1,1-Trichloroethane	0.68	0.68	100	ND	0.025	ND	0.047	ND	0.00072	ND	0.00049	ND	0.00069	ND	0.00099	ND	0.00061	ND	0.00057	ND	0.00053
1,1,2,2-Tetrachloroethane				ND	0.025	ND	0.047	ND	0.00072	ND	0.00049	ND	0.00069	ND	0.00099	ND	0.00061	ND	0.00057	ND	0.00053
1,1,2-Trichloroethane				ND	0.05	ND	0.094	ND	0.0014	ND	0.00097	ND	0.0014	ND	0.002	ND	0.0012	ND	0.0011	ND	0.0011
1,1-Dichloroethane	0.27	0.27	47	ND	0.05	ND	0.094	ND	0.0014	ND	0.00097	ND	0.0014	ND	0.002	ND	0.0012	ND	0.0011	ND	0.0011
1,1-Dichloroethene	0.24	0.33	0.98	ND	0.05	ND	0.094	ND	0.0014	ND	0.00097	ND	0.0014	ND	0.002	ND	0.0012	ND	0.0011	ND	0.0011
1,2,4-Trichlorobenzene				ND	0.1	ND	0.19	ND	0.0029	ND	0.0019	ND	0.0028	ND	0.004	ND	0.0024	ND	0.0023	ND	0.0021
1,2,4-Trimethylbenzene	5.9	5.9	100	0.031J	0.1	ND	0.19	ND	0.0029	ND	0.0019	ND	0.0028	ND	0.004	ND	0.0024	ND	0.0023	ND	0.0021
1,2-Dibromo-3-chloropropane				ND	0.15	ND	0.28	ND	0.0043	ND	0.0029	ND	0.0042	ND	0.006	ND	0.0037	ND	0.0034	ND	0.0032
1,2-Dibromoethane				ND	0.05	ND	0.094	ND	0.0014	ND	0.00097	ND	0.0014	ND	0.002	ND	0.0012	ND	0.0011	ND	0.0011
1,2-Dichlorobenzene	1.1	1.1	100	ND	0.1	ND	0.19	ND	0.0029	ND	0.0019	ND	0.0028	ND	0.004	ND	0.0024	ND	0.0023	ND	0.0021
1,2-Dichloroethane	0.02	0.02	5.8	ND	0.05	ND	0.094	ND	0.0014	ND	0.00097	ND	0.0014	ND	0.002	ND	0.0012	ND	0.0011	ND	0.0011
1,2-Dichloropropane				ND	0.05	ND	0.094	ND	0.0014	ND	0.00097	ND	0.0014	ND	0.002	ND	0.0012	ND	0.0011	ND	0.0011
1,3,5-Trimethylbenzene	3.1	3.1	100	0.014J	0.1	ND	0.19	ND	0.0029	ND	0.0019	ND	0.0028	ND	0.004	ND	0.0024	ND	0.0023	ND	0.0021
1,3-Dichlorobenzene	2.6	2.6	38	ND	0.1	ND	0.19	ND	0.0029	ND	0.0019	ND	0.0028	ND	0.004	ND	0.0024	ND	0.0023	ND	0.0021
1,4-Dichlorobenzene	1.8	1.8	24	ND	0.1	ND	0.19	ND	0.0029	ND	0.0019	ND	0.0028	ND	0.004	ND	0.0024	ND	0.0023	ND	0.0021
2-Butanone	0.1	0.1	100	ND	0.5	ND	0.94	ND	0.014	ND	0.0097	ND	0.014	ND	0.02	ND	0.012	ND	0.011	ND	0.011
2-Hexanone				ND	0.5	ND	0.94	ND	0.014	ND	0.0097	ND	0.014	ND	0.02	ND	0.012	ND	0.011	ND	0.011
4-Methyl-2-pentanone				ND	0.5	ND	0.94	ND	0.014	ND	0.0097	ND	0.014	ND	0.02	ND	0.012	ND	0.011	ND	0.011
Acetone	0.03	0.03	100	ND	0.5	ND	0.94	0.017	0.014	ND	0.0097	ND	0.014	ND	0.02	ND	0.012	0.0077J	0.011	ND	0.011
Benzene	0.06	0.06	3.7	ND	0.025	ND	0.047	ND	0.00072	ND	0.00049	ND	0.00069	ND	0.00099	ND	0.00061	ND	0.00057	ND	0.00053
Bromodichloromethane				ND	0.025	ND	0.047	ND	0.00072	ND	0.00049	ND	0.00069	ND	0.00099	ND	0.00061	ND	0.00057	ND	0.00053
Bromoform				ND	0.2	ND	0.38	ND	0.0057	ND	0.0039	ND	0.0056	ND	0.008	ND	0.0049	ND	0.0046	ND	0.0043
Bromomethane				ND	0.1	ND	0.19	ND	0.0029	ND	0.0019	ND	0.0028	ND	0.004	ND	0.0024	ND	0.0023	ND	0.0021
Carbon disulfide				ND	0.5	ND	0.94	ND	0.014	ND	0.0097	ND	0.014	ND	0.02	ND	0.012	ND	0.011	ND	0.011
Carbon tetrachloride	0.76	0.76	7.1	ND	0.05	ND	0.094	ND	0.0014	ND	0.00097	ND	0.0014	ND	0.002	ND	0.0012	ND	0.0011	ND	0.0011
Chlorobenzene	4.5	4.5	100	ND	0.025	ND	0.047	ND	0.00072	ND	0.00049	ND	0.00069	ND	0.00099	ND	0.00061	ND	0.00057	ND	0.00053
Chloroethane				ND	0.1	ND	0.19	ND	0.0029	ND	0.0019	ND	0.0028	ND	0.004	ND	0.0024	ND	0.0023	ND	0.0021
Chloroform	0.37	0.37	24	0.036J	0.076	0.054J	0.14	ND	0.0022	ND	0.0015	ND	0.0021	0.00057J	0.003	ND	0.0018	ND	0.0017	ND	0.0016
Chloromethane				ND	0.2	ND	0.38	ND	0.0057	ND	0.0039	ND	0.0056	ND	0.008	ND	0.0049	ND	0.0046	ND	0.0043
cis-1,2-Dichloroethene	0.19	0.19	41	ND	0.05	ND	0.094	ND	0.0014	ND	0.00097	ND	0.0014	ND	0.002	ND	0.0012	ND	0.0011	ND	0.0011
cis-1,3-Dichloropropene				ND	0.025	ND	0.047	ND	0.00072	ND	0.00049	ND	0.00069	ND	0.00099	ND	0.00061	ND	0.00057	ND	0.00053
Cyclohexane				0.053J	0.5	ND	0.94	ND	0.014	ND	0.0097	ND	0.014	ND	0.02	ND	0.012	ND	0.011	ND	0.011
Dibromochloromethane				ND	0.05	ND	0.094	ND	0.0014	ND	0.00097	ND	0.0014	ND	0.002	ND	0.0012	ND	0.0011	ND	0.0011
Dichlorodifluoromethane				ND	0.5	ND	0.94	ND	0.014	ND	0.0097	ND	0.014	ND	0.02	ND	0.012	ND	0.011	ND	0.011
Ethylbenzene	1	1	76	ND	0.05	ND	0.094	ND	0.0014	ND	0.00097	ND	0.0014	ND	0.002	ND	0.0012	ND	0.0011	ND	0.0011
Freon-113				ND	0.2	ND	0.38	ND	0.0057	ND	0.0039	ND	0.0056	ND	0.008	ND	0.0049	ND	0.0046	ND	0.0043
Isopropylbenzene				ND	0.05	ND	0.094	ND	0.0014	ND	0.00097	ND	0.0014	ND	0.002	ND	0.0012	ND	0.0011	ND	0.0011
Methyl Acetate				ND	0.2	ND	0.38	ND	0.0057	ND	0.0039	ND	0.0056	ND	0.008	ND	0.0049	ND	0.0046	ND	0.0043
Methyl cyclohexane				0.16J	0.2	0.1J	0.38	ND	0.0057	ND	0.0039	ND	0.0056	ND	0.008	ND	0.0049	ND	0.0046	ND	0.0043
Methyl tert butyl ether	0.1	0.1	100	ND	0.1	ND	0.19	ND	0.0029	ND	0.0019	ND	0.0028	ND	0.004	ND	0.0024	ND	0.0023	ND	0.0021
Methylene chloride	0.05	0.05	81	ND	0.25	ND	0.47	ND	0.0072	ND	0.0049	ND	0.0069	ND	0.0099	ND	0.0061	ND	0.0057	ND	0.0053
n-Butylbenzene	18	18	100	ND	0.05	ND	0.094	ND	0.0014	ND	0.00097	ND	0.0014	ND	0.002	ND	0.0012	ND	0.0011	ND	0.0011
n-Propylbenzene	5	5	100	ND	0.05	ND	0.094	ND	0.0014	ND	0.00097										

Table 1
Historic Fill Material Data Summary

LOCATION				TP-406-0.5-1		TP-406-1-2		TP-407-0-2		TP-408-1-2		TP-409-1-2		TP-410-0.0.2		TP-410-0.5-1		TP-410-3-4		TP-411-0-0.2	
SAMPLING DATE				3/17/2026		3/17/2026		3/17/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026	
LAB SAMPLE ID				L2614656-07		L2614656-08		L2614656-09		L2614294-03		L2614294-04		L2614294-05		L2614294-06		L2614294-07		L2614294-08	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Volatile Organics by EPA 5035/8260-TIC																					
No Tentatively Identified Compounds				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclopentane				-	-	-	-	-	-	0.00248NJ	0	-	-	-	-	-	-	-	-	-	-
Cyclotrisiloxane, Hexamethyl-				-	-	-	-	-	-	-	-	0.00286NJ	0	-	-	-	-	-	-	-	-
Ethane, 1,1-Difluoro-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				0.138J	0	0.232J	0	0.00364J	0	0.00209J	0	-	-	0.00479J	0	0.00283J	0	0.00255J	0	0.00242J	0
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TIC Compounds				0.138J	0	0.232J	0	0.00364J	0	0.00457J	0	0.00286J	0	0.00479J	0	0.00283J	0	0.00255J	0	0.00242J	0
Semivolatile Organics by GC/MS																					
1,2,4,5-Tetrachlorobenzene				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
1,4-Dioxane	0.1	0.1	5.7	ND	0.031	ND	0.034	ND	0.028	ND	0.028	ND	0.028	ND	0.03	ND	0.029	ND	0.029	ND	0.028
2,3,4,6-Tetrachlorophenol				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
2,4,5-Trichlorophenol				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
2,4,6-Trichlorophenol				ND	0.12	ND	0.14	ND	0.11	ND	0.11	ND	0.11	ND	0.12	ND	0.11	ND	0.12	ND	0.11
2,4-Dichlorophenol				ND	0.19	ND	0.21	ND	0.17	ND	0.17	ND	0.17	ND	0.18	ND	0.17	ND	0.18	ND	0.17
2,4-Dimethylphenol				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
2,4-Dinitrophenol				ND	1	ND	1.1	ND	0.9	ND	0.89	ND	0.89	ND	0.97	ND	0.92	ND	0.94	ND	0.91
2,4-Dinitrotoluene				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
2,6-Dinitrotoluene				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
2-Chloronaphthalene				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
2-Chlorophenol				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
2-Methylnaphthalene				ND	0.25	0.072J	0.28	0.16J	0.22	ND	0.22	ND	0.22	0.11J	0.24	0.11J	0.23	1.1	0.24	ND	0.23
2-Methylphenol	0.33	0.33	100	ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
2-Nitroaniline				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
2-Nitrophenol				ND	0.45	ND	0.5	ND	0.41	ND	0.4	ND	0.4	ND	0.44	ND	0.41	ND	0.42	ND	0.41
3,3'-Dichlorobenzidine				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
3-Methylphenol/4-Methylphenol	0.33	0.33	100	ND	0.3	ND	0.33	0.083J	0.27	ND	0.27	ND	0.26	ND	0.29	ND	0.28	0.091J	0.28	ND	0.27
3-Nitroaniline				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
4,6-Dinitro-o-cresol				ND	0.54	ND	0.6	ND	0.49	ND	0.48	ND	0.48	ND	0.52	ND	0.5	ND	0.51	ND	0.49
4-Bromophenyl phenyl ether				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
4-Chloroaniline				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
4-Chlorophenyl phenyl ether				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
4-Nitroaniline				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
4-Nitrophenol				ND	0.29	ND	0.32	ND	0.26	ND	0.26	ND	0.26	ND	0.28	ND	0.27	ND	0.27	ND	0.26
Acenaphthene	20	98	100	ND	0.17	ND	0.18	0.16	0.15	ND	0.15	ND	0.15	ND	0.16	0.13J	0.15	2	0.16	0.022J	0.15
Acenaphthylene	100	365	100	ND	0.17	0.044J	0.18	0.79	0.15	ND	0.15	0.029J	0.15	0.083J	0.16	1.5	0.15	0.68	0.16	0.057J	0.15
Acetophenone				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
Anthracene	100	1000	100	ND	0.12	ND	0.14	1	0.11	ND	0.11	ND	0.11	0.055J	0.12	0.95	0.11	4	0.12	0.083J	0.11
Atrazine				ND	0.17	ND	0.18	ND	0.15	ND	0.15	ND	0.15	ND	0.16	ND	0.15	ND	0.16	ND	0.15
Benzaldehyde				ND	0.27	ND	0.3	ND	0.25	ND	0.24	ND	0.24	ND	0.27	ND	0.25	ND	0.26	ND	0.25
Benzo(a)anthracene	1	1	1.4	0.059J	0.12	0.14	0.14	4.6	0.11	ND	0.11	0.1J	0.11	0.22	0.12	2.1	0.11	12	0.59	0.34	0.11
Benzo(a)pyrene	1	22	1	0.054J	0.17	0.15J	0.18	5	0.15	ND	0.15	0.11J	0.15	0.23	0.16	3.2	0.15	9.8	0.78	0.35	0.15
Benzo(b)fluoranthene	1	2.1	1.4	0.067J	0.12	0.21	0.14	6.8	0.11	ND	0.11	0.16	0.11	0.35	0.12	4.6					

Table 1

Historic Fill Material Data Summary

LOCATION				TP-406-0.5-1		TP-406-1-2		TP-407-0-2		TP-408-1-2		TP-409-1-2		TP-410-0.0.2		TP-410-0.5-1		TP-410-3-4		TP-411-0-0.2	
SAMPLING DATE				3/17/2026		3/17/2026		3/17/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026	
LAB SAMPLE ID				L2614656-07		L2614656-08		L2614656-09		L2614294-03		L2614294-04		L2614294-05		L2614294-06		L2614294-07		L2614294-08	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Hexachlorobutadiene				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
Hexachlorocyclopentadiene				ND	0.59	ND	0.66	ND	0.54	ND	0.53	ND	0.53	ND	0.58	ND	0.55	ND	0.56	ND	0.54
Hexachloroethane				ND	0.17	ND	0.18	ND	0.15	ND	0.15	ND	0.15	ND	0.16	ND	0.15	ND	0.16	ND	0.15
Indeno(1,2,3-cd)pyrene	0.5	6.6	1.4	0.032J	0.17	0.092J	0.18	3.4	0.15	ND	0.15	0.073J	0.15	0.15J	0.16	2.7	0.15	5.4	0.16	0.22	0.15
Isophorone				ND	0.19	ND	0.21	ND	0.17	ND	0.17	ND	0.17	ND	0.18	ND	0.17	ND	0.18	ND	0.17
n-Nitrosodi-n-propylamine				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
Naphthalene	12	12	100	ND	0.21	0.069J	0.23	0.34	0.19	ND	0.18	ND	0.18	0.08J	0.2	0.2	0.19	2.4	0.2	ND	0.19
NDPA/DPA				ND	0.17	ND	0.18	ND	0.15	ND	0.15	ND	0.15	ND	0.16	ND	0.15	ND	0.16	ND	0.15
Nitrobenzene	0.08	0.08	1.8	ND	0.042	ND	0.046	ND	0.038	ND	0.037	ND	0.037	ND	0.04	ND	0.038	ND	0.039	ND	0.038
p-Chloro-m-cresol				ND	0.21	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	ND	0.2	ND	0.19
Pentachlorophenol	0.8	0.8	1.3	ND	0.17	ND	0.18	ND	0.15	ND	0.15	ND	0.15	ND	0.16	ND	0.15	ND	0.16	ND	0.15
Phenanthrene	1.1	1000	4.9	0.098J	0.12	0.25	0.14	5.6	0.11	ND	0.11	0.065J	0.11	0.21	0.12	1.5	0.11	21	0.59	0.37	0.11
Phenol	0.33	0.33	100	ND	0.21	ND	0.23	0.054J	0.19	ND	0.18	ND	0.18	ND	0.2	ND	0.19	0.05J	0.2	ND	0.19
Pyrene	64	1000	100	0.11J	0.12	0.28	0.14	6.4	0.11	0.02J	0.11	0.17	0.11	0.36	0.12	3.1	0.11	16	0.59	0.61	0.11
Semivolatile Organics by GC/MS-TIC																					
No Tentatively Identified Compounds				ND	0	-	-	-	-	ND	0	ND	0	-	-	-	-	-	-	-	-
Tetrachloroethene				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.03J	0	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	0.577J	0	0.993J	0	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	0.486J	0	0.849J	0	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	0.432J	0	1.33J	0	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	0.904J	0	0.781J	0	-	-
Unknown				-	-	-	-	1.72J	0	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alcohol				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alkane				-	-	0.193J	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Amide				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Benzene				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Cyclohexene				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Ketone				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Ketone				-	-	-	-	-	-	-	-	-	-	-	-	0.389J	0	0.964J	0	-	-
Unknown Ketone				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Organic Acid				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	0.709J	0	-	-	-	-	-	-	1.67J	0	-	-	-	-
Unknown PAH				-	-	-	-	1.3J	0	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	1.25J	0	-	-	-	-	-	-	0.809J	0	2.94J	0	-	-
Unknown PAH				-	-	-	-	3.51J	0	-	-	-	-	-	-	0.476J	0	1.75J	0	-	-
Unknown PAH				-	-	-	-	1.23J	0	-	-	-	-	-	-	0.728J	0	1.37J	0	-	-
Unknown PAH				-	-	-	-	1.28J	0	-	-	-	-	-	-	1.21J	0	1.34J	0	-	-
Unknown PAH				-	-	-	-	0.844J	0	-	-	-	-	-	-	2.31J	0	1.94J	0	-	-
Unknown PAH				-	-	-	-	1.44J	0	-	-	-	-	-	-	1.32J	0	1.45J	0	-	-
Unknown PAH				-	-	-	-	0.797J	0	-	-	-	-	-	-	1.4J	0	3.22J	0	-	-
Unknown PAH				-	-	-	-	1.22J	0	-	-	-	-	-	-	0.519J	0	5.29J	0	-	-
Unknown PAH				-	-	-	-	0.926J	0	-	-	-	-	-	-	0.552J	0	2.07J	0	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	0.17J	0	-	-	-	-	0.231J	0
Unknown PAH				-	-	-	-	0.925J	0	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	1.24J	0	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	1.63J	0	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Thiophene				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TIC Compounds				-	-	0.193J	0	20J	0	-	-	-	-	0.17J	0	13.8J	0	27.3J	0	0.231J	0

Table 1

Historic Fill Material Data Summary

LOCATION				TP-406-0.5-1		TP-406-1-2		TP-407-0-2		TP-408-1-2		TP-409-1-2		TP-410-0.0.2		TP-410-0.5-1		TP-410-3-4		TP-411-0-0.2	
SAMPLING DATE				3/17/2026		3/17/2026		3/17/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026	
LAB SAMPLE ID				L2614656-07		L2614656-08		L2614656-09		L2614294-03		L2614294-04		L2614294-05		L2614294-06		L2614294-07		L2614294-08	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Petroleum Hydrocarbon Quantitation																					
TPH (C9-C36)				20.1J	41.4	92.6	44.4	372	38.1	11.2J	37.4	16.1J	36.7	33.4J	39.6	318	37.8	438	38.4	31J	36.2
Polychlorinated Biphenyls by GC																					
Aroclor 1016	0.1	3.2	1	-	-	-	-	ND	0.0556	-	-	-	-	-	-	-	-	ND	0.0567	-	-
Aroclor 1221	0.1	3.2	1	-	-	-	-	ND	0.0556	-	-	-	-	-	-	-	-	ND	0.0567	-	-
Aroclor 1232	0.1	3.2	1	-	-	-	-	ND	0.0556	-	-	-	-	-	-	-	-	ND	0.0567	-	-
Aroclor 1242	0.1	3.2	1	-	-	-	-	ND	0.0556	-	-	-	-	-	-	-	-	ND	0.0567	-	-
Aroclor 1248	0.1	3.2	1	-	-	-	-	ND	0.0556	-	-	-	-	-	-	-	-	ND	0.0567	-	-
Aroclor 1254	0.1	3.2	1	-	-	-	-	ND	0.0556	-	-	-	-	-	-	-	-	ND	0.0567	-	-
Aroclor 1260	0.1	3.2	1	-	-	-	-	ND	0.0556	-	-	-	-	-	-	-	-	ND	0.0567	-	-
Aroclor 1262	0.1	3.2	1	-	-	-	-	ND	0.0556	-	-	-	-	-	-	-	-	ND	0.0567	-	-
Aroclor 1268	0.1	3.2	1	-	-	-	-	ND	0.0556	-	-	-	-	-	-	-	-	ND	0.0567	-	-
PCBs, Total	0.1	3.2	1	-	-	-	-	ND	0.0556	-	-	-	-	-	-	-	-	ND	0.0567	-	-
Organochlorine Pesticides by GC																					
4,4'-DDD	0.0033	14	5	-	-	-	-	ND	0.00176	-	-	-	-	-	-	-	-	ND	0.00188	-	-
4,4'-DDE	0.0033	9.3	3.4	-	-	-	-	ND	0.00176	-	-	-	-	-	-	-	-	0.0019	0.00188	-	-
4,4'-DDT	0.0033	135	3.8	-	-	-	-	ND	0.00176	-	-	-	-	-	-	-	-	0.00415	0.00188	-	-
Aldrin	0.0048	0.19	0.044	-	-	-	-	ND	0.00176	-	-	-	-	-	-	-	-	ND	0.00188	-	-
Alpha-BHC	0.02	0.02	0.18	-	-	-	-	ND	0.000734	-	-	-	-	-	-	-	-	ND	0.000786	-	-
Beta-BHC	0.021	0.09	0.18	-	-	-	-	ND	0.00176	-	-	-	-	-	-	-	-	ND	0.00188	-	-
Chlordane				-	-	-	-	ND	0.0147	-	-	-	-	-	-	-	-	0.0491	0.0157	-	-
cis-Chlordane	0.014	4.5	0.65	-	-	-	-	ND	0.0022	-	-	-	-	-	-	-	-	0.00327	0.00236	-	-
Delta-BHC	0.04	0.1	100	-	-	-	-	ND	0.00176	-	-	-	-	-	-	-	-	ND	0.00188	-	-
Dieldrin	0.005	0.1	0.075	-	-	-	-	ND	0.0011	-	-	-	-	-	-	-	-	ND	0.00118	-	-
Endosulfan I	4.3	65	35	-	-	-	-	ND	0.00176	-	-	-	-	-	-	-	-	ND	0.00188	-	-
Endosulfan II	4.3	44	35	-	-	-	-	ND	0.00176	-	-	-	-	-	-	-	-	ND	0.00188	-	-
Endosulfan sulfate	4.3	47	35	-	-	-	-	ND	0.000734	-	-	-	-	-	-	-	-	ND	0.000786	-	-
Endrin	0.014	0.06	5.3	-	-	-	-	ND	0.000734	-	-	-	-	-	-	-	-	ND	0.000786	-	-
Endrin aldehyde				-	-	-	-	ND	0.0022	-	-	-	-	-	-	-	-	ND	0.00236	-	-
Endrin ketone				-	-	-	-	ND	0.00176	-	-	-	-	-	-	-	-	ND	0.00188	-	-
Heptachlor	0.013	0.38	0.53	-	-	-	-	ND	0.000881	-	-	-	-	-	-	-	-	ND	0.000943	-	-
Heptachlor epoxide				-	-	-	-	ND	0.0033	-	-	-	-	-	-	-	-	ND	0.00354	-	-
Lindane	0.025	0.05	0.21	-	-	-	-	ND	0.000734	-	-	-	-	-	-	-	-	ND	0.000786	-	-
Methoxychlor				-	-	-	-	ND	0.0033	-	-	-	-	-	-	-	-	ND	0.00354	-	-
Toxaphene				-	-	-	-	ND	0.033	-	-	-	-	-	-	-	-	ND	0.0354	-	-
trans-Chlordane				-	-	-	-	ND	0.0022	-	-	-	-	-	-	-	-	0.00127JIP	0.00236	-	-
Chlorinated Herbicides by GC																					
2,4,5-T				-	-	-	-	ND	0.192	-	-	-	-	-	-	-	-	ND	0.196	-	-
2,4,5-TP (Silvex)	3.8			-	-	-	-	ND	0.192	-	-	-	-	-	-	-	-	ND	0.196	-	-
2,4-D				-	-	-	-	ND	0.192	-	-	-	-	-	-	-	-	ND	0.196	-	-
Total Metals																					
Aluminum, Total				5740	9.57	5990	10.6	7570	8.84	7910	8.79	7320	8.58	8320	9.38	8530	9.05	7500	9.31	6960	8.71
Antimony, Total				ND	4.79	ND	5.3	ND	4.42	ND	4.4	ND	4.29	ND	4.69	ND	4.52	ND	4.65	ND	4.36
Arsenic, Total	13	16	16	20.4	0.957	23.5	1.06	8.09	0.884	6.36	0.879	7.5	0.858	7.25	0.938	8.95	0.905	7.75	0.931	11.7	0.871
Barium, Total	410	820	410	276	0.957	572	1.06	55.9	0.884	44.4	0.879	73.1	0.858	87.3	0.938	110	0.905	152	0.931	168	0.871
Beryllium, Total	4.4	47	43	0.779	0.479	1.47	0.53	0.472	0.442	0.434J	0.44	0.432	0.429	0.488	0.469	0.516	0.452	0.438J	0.465	0.414J	0.436
Cadmium, Total	2.5	7.5	2.5	0.65J	0.957	0.763J	1.06	0.253J	0.884	ND	0.879	ND	0.858	0.933J	0.938	0.251J	0.905	2.9	0.931	0.51J	0.871
Calcium, Total				21700	9.57	24700	10.6	26900	8.84	57600	8.79	41600	8.58	12400	9.38	30600	9.05	33900	9.31	34900	8.71
Chromium, Total				10.6	0.957	14.9	1.06	10.8	0.884	10.5	0.879	8.45	0.858	11.4	0.938	13	0.905	11.2	0.931	11.8	0.871
Chromium, Hexavalent	1	19	1	-	-	-	-	ND	0.925	-	-	-	-	-	-	-	-	ND	0.948	-	-
Cobalt, Total				8.85	1.91	7.49	2.12	6.43	1.77	5.97	1.76	5.8	1.72	6.61	1.88	6.32	1.81	5.7	1.86	5.8	1.74
Copper, Total	50	1720	280	436	0.957	675	1.06	44.2	0.884	24	0.879	23.1	0.858	163	0.938	79.6	0.905	696	0.931	91.2	0.871
Cyanide, Total	2.3	40	13	-	-	-	-	ND	1.1	-	-	-	-	-	-	-	-	0.48J	1.1	-	-
Iron, Total				29000	23.9	16200	26.5	18600	22.1	18500	22	16500	21.4	18800	23.5	19200	22.6	19600	23.3	15500	21.8
Lead, Total	63	450	400	250	4.79	412	5.3	113	4.42	18.7	4.4	42.8	4.29	336	4.69	270	4.52	1670	4.65	378	4.36
Magnesium, Total				5880	9.57	7720	10.6	16300	8.84	25600	8.79	15400	8.58	6030	9.38	11400	9.05	12200	9.31	12300	8.71
Manganese, Total	1600	2000	2000	406	0.957	377	1.06	804	0.884	925	0.879	1000	0.858	698	0.938	958	0.905	997	0.931	635	0.871
Mercury, Total	0.18	0.73	0.3	0.081J	0.098	ND	0.103	0.069J	0.074	ND	0.076	0.088	0.082	0.168	0.095	0.157	0.091	0.122	0.075	0.262	0.074
Nickel, Total	30	130	320	40.7	2.39	35	2.65	14.9	2.21	8.53	2.2	7.73	2.14	8.78	2.35	9.53	2.26	8.5	2.33	10.4	2.18
Potassium, Total				906	239	982	265	696	221	459	220	417	214	474	235	848	226	493	233	592	218
Selenium, Total	3.9	4	110	0.396J																	

Table 1
Historic Fill Material Data Summary

LOCATION				TP-406-0.5-1		TP-406-1-2		TP-407-0-2		TP-408-1-2		TP-409-1-2		TP-410-0.0.2		TP-410-0.5-1		TP-410-3-4		TP-411-0-0.2	
SAMPLING DATE				3/17/2026		3/17/2026		3/17/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026	
LAB SAMPLE ID				L2614656-07		L2614656-08		L2614656-09		L2614294-03		L2614294-04		L2614294-05		L2614294-06		L2614294-07		L2614294-08	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Perfluorinated Alkyl Acids by EPA 1633																					
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11CI-PF3OUdS)				-	-	-	-	ND	0.000801	-	-	-	-	-	-	-	-	ND	0.0008	-	-
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)				-	-	-	-	ND	0.000801	-	-	-	-	-	-	-	-	ND	0.0008	-	-
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)				-	-	-	-	ND	0.000801	-	-	-	-	-	-	-	-	ND	0.0008	-	-
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)				-	-	-	-	ND	0.000801	-	-	-	-	-	-	-	-	ND	0.0008	-	-
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)				-	-	-	-	ND	0.005	-	-	-	-	-	-	-	-	ND	0.005	-	-
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)				-	-	-	-	ND	0.005	-	-	-	-	-	-	-	-	ND	0.005	-	-
3-Perfluoropropyl Propanoic Acid (3:3FTCA)				-	-	-	-	ND	0.001	-	-	-	-	-	-	-	-	ND	0.001	-	-
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)				-	-	-	-	ND	0.000801	-	-	-	-	-	-	-	-	ND	0.0008	-	-
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9CI-PF3ONS)				-	-	-	-	ND	0.000801	-	-	-	-	-	-	-	-	ND	0.0008	-	-
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)				-	-	-	-	ND	0.000801	-	-	-	-	-	-	-	-	ND	0.0008	-	-
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.000469	-	-
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)				-	-	-	-	ND	0.002	-	-	-	-	-	-	-	-	ND	0.002	-	-
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.001	-	-
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)				-	-	-	-	ND	0.002	-	-	-	-	-	-	-	-	ND	0.002	-	-
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)				-	-	-	-	ND	0.0004	-	-	-	-	-	-	-	-	ND	0.0004	-	-
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)				-	-	-	-	ND	0.0004	-	-	-	-	-	-	-	-	ND	0.0004	-	-
Perfluoro-3-Methoxypropanoic Acid (PFMPA)				-	-	-	-	ND	0.0004	-	-	-	-	-	-	-	-	ND	0.0004	-	-
Perfluoro-4-Methoxybutanoic Acid (PFMBA)				-	-	-	-	ND	0.0004	-	-	-	-	-	-	-	-	ND	0.0004	-	-
Perfluorobutanesulfonic Acid (PFBS)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluorobutanoic Acid (PFBA)				-	-	-	-	ND	0.000801	-	-	-	-	-	-	-	-	ND	0.0008	-	-
Perfluorodecanesulfonic Acid (PFDS)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluorodecanoic Acid (PFDA)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluorododecanesulfonic Acid (PFDoS)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluorododecanoic Acid (PFDoA)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluoroheptanesulfonic Acid (PFHpS)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluoroheptanoic Acid (PFHpA)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluorohexanesulfonic Acid (PFHxS)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluorohexanoic Acid (PFHxA)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluorononanesulfonic Acid (PFNS)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluorononanoic Acid (PFNA)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluorooctanesulfonamide (PFOSA)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.001	0.044	-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluorooctanoic Acid (PFOA)	0.00066	0.0008	0.033	-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluoropentanesulfonic Acid (PFPeS)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluoropentanoic Acid (PFPeA)				-	-	-	-	ND	0.0004	-	-	-	-	-	-	-	-	ND	0.0004	-	-
Perfluorotetradecanoic Acid (PFTeDA)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluorotridecanoic Acid (PFTrDA)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-
Perfluoroundecanoic Acid (PFUnA)				-	-	-	-	ND	0.0002	-	-	-	-	-	-	-	-	ND	0.0002	-	-

Notes:
Results and soil cleanup objectives (SCO) in mg/kg
Highlighted color indicates the respective use SCO(s) exceeded. Use type SCOs are listed from left to right from most restrictive to least restrictive.
Highlighted grey indicates the analyte was not detected but the reporting limit was above the least restrictive SCO.
Blank space indicates that a SCO does not exist
Duplicates are listed after their respective parent sample.
"J" indicates estimated concentration
"I" indicates the lower value for the two columns has been reported due to obvious interference.
"P" indicates the RPD between the results for the two columns exceeds the method-specified criteria.
"NJ" indicates presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
"- " indicates that sample was not anlyazed for that parameter
"ND" indicates not detected above the associated reporting limit.

Table 1

Historic Fill Material Data Summary

LOCATION				TP-411-0.5-1		TP-411-1.5-2		TP-412-2-3		DUP-031626-01		TP-413-1-2		TP-414-1.5-2		TP-415-0-0.2		DUP-031626-02		TP-415-0.5-1	
SAMPLING DATE				3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026	
LAB SAMPLE ID				L2614294-09		L2614294-10		L2614294-11		L2614294-18		L2614294-12		L2614294-13		L2614294-14		L2614294-19		L2614294-15	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Volatile Organics by EPA 5035/8260				ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,1-Trichloroethane	0.68	0.68	100	ND	0.00058	ND	0.00084	ND	0.00054	ND	0.00052	ND	0.00059	ND	0.00048	ND	0.00057	ND	0.00046	ND	0.00053
1,1,2,2-Tetrachloroethane				ND	0.00058	ND	0.00084	ND	0.00054	ND	0.00052	ND	0.00059	ND	0.00048	ND	0.00057	ND	0.00046	ND	0.00053
1,1,2-Trichloroethane				ND	0.0012	ND	0.0017	ND	0.0011	ND	0.001	ND	0.0012	ND	0.00096	ND	0.0011	ND	0.00093	ND	0.001
1,1-Dichloroethane	0.27	0.27	47	ND	0.0012	ND	0.0017	ND	0.0011	ND	0.001	ND	0.0012	ND	0.00096	ND	0.0011	ND	0.00093	ND	0.001
1,1-Dichloroethene	0.24	0.33	0.98	ND	0.0012	ND	0.0017	ND	0.0011	ND	0.001	ND	0.0012	ND	0.00096	ND	0.0011	ND	0.00093	ND	0.001
1,2,4-Trichlorobenzene				ND	0.0023	ND	0.0034	ND	0.0022	ND	0.0021	ND	0.0024	ND	0.0019	ND	0.0023	ND	0.0018	ND	0.0021
1,2,4-Trimethylbenzene	5.9	5.9	100	ND	0.0023	ND	0.0034	ND	0.0022	ND	0.0021	ND	0.0024	ND	0.0019	ND	0.0023	ND	0.0018	ND	0.0021
1,2-Dibromo-3-chloropropane				ND	0.0035	ND	0.005	ND	0.0032	ND	0.0031	ND	0.0035	ND	0.0029	ND	0.0034	ND	0.0028	ND	0.0032
1,2-Dibromoethane				ND	0.0012	ND	0.0017	ND	0.0011	ND	0.001	ND	0.0012	ND	0.00096	ND	0.0011	ND	0.00093	ND	0.001
1,2-Dichlorobenzene	1.1	1.1	100	ND	0.0023	ND	0.0034	ND	0.0022	ND	0.0021	ND	0.0024	ND	0.0019	ND	0.0023	ND	0.0018	ND	0.0021
1,2-Dichloroethane	0.02	0.02	5.8	ND	0.0012	ND	0.0017	ND	0.0011	ND	0.001	ND	0.0012	ND	0.00096	ND	0.0011	ND	0.00093	ND	0.001
1,2-Dichloropropane				ND	0.0012	ND	0.0017	ND	0.0011	ND	0.001	ND	0.0012	ND	0.00096	ND	0.0011	ND	0.00093	ND	0.001
1,3,5-Trimethylbenzene	3.1	3.1	100	ND	0.0023	ND	0.0034	ND	0.0022	ND	0.0021	ND	0.0024	ND	0.0019	ND	0.0023	ND	0.0018	ND	0.0021
1,3-Dichlorobenzene	2.6	2.6	38	ND	0.0023	ND	0.0034	ND	0.0022	ND	0.0021	ND	0.0024	ND	0.0019	ND	0.0023	ND	0.0018	ND	0.0021
1,4-Dichlorobenzene	1.8	1.8	24	ND	0.0023	ND	0.0034	ND	0.0022	ND	0.0021	ND	0.0024	ND	0.0019	ND	0.0023	ND	0.0018	ND	0.0021
2-Butanone	0.1	0.1	100	ND	0.012	ND	0.017	ND	0.011	ND	0.01	ND	0.012	ND	0.0096	ND	0.011	ND	0.0093	ND	0.01
2-Hexanone				ND	0.012	ND	0.017	ND	0.011	ND	0.01	ND	0.012	ND	0.0096	ND	0.011	ND	0.0093	ND	0.01
4-Methyl-2-pentanone				ND	0.012	ND	0.017	ND	0.011	ND	0.01	ND	0.012	ND	0.0096	ND	0.011	ND	0.0093	ND	0.01
Acetone	0.03	0.03	100	ND	0.012	ND	0.017	ND	0.011	0.0052J	0.01	ND	0.012	ND	0.0096	ND	0.011	ND	0.0093	ND	0.01
Benzene	0.06	0.06	3.7	ND	0.00058	ND	0.00084	ND	0.00054	ND	0.00052	ND	0.00059	ND	0.00048	ND	0.00057	ND	0.00046	ND	0.00053
Bromodichloromethane				ND	0.00058	ND	0.00084	ND	0.00054	ND	0.00052	ND	0.00059	ND	0.00048	ND	0.00057	ND	0.00046	ND	0.00053
Bromoform				ND	0.0046	ND	0.0067	ND	0.0043	ND	0.0042	ND	0.0047	ND	0.0038	ND	0.0046	ND	0.0037	ND	0.0042
Bromomethane				ND	0.0023	ND	0.0034	ND	0.0022	ND	0.0021	ND	0.0024	ND	0.0019	ND	0.0023	ND	0.0018	ND	0.0021
Carbon disulfide				ND	0.012	ND	0.017	ND	0.011	ND	0.01	ND	0.012	ND	0.0096	ND	0.011	ND	0.0093	ND	0.01
Carbon tetrachloride	0.76	0.76	7.1	ND	0.0012	ND	0.0017	ND	0.0011	ND	0.001	ND	0.0012	ND	0.00096	ND	0.0011	ND	0.00093	ND	0.001
Chlorobenzene	4.5	4.5	100	ND	0.00058	ND	0.00084	ND	0.00054	ND	0.00052	ND	0.00059	ND	0.00048	ND	0.00057	ND	0.00046	ND	0.00053
Chloroethane				ND	0.0023	ND	0.0034	ND	0.0022	ND	0.0021	ND	0.0024	ND	0.0019	ND	0.0023	ND	0.0018	ND	0.0021
Chloroform	0.37	0.37	24	ND	0.0017	ND	0.0025	ND	0.0016	ND	0.0016	ND	0.0018	ND	0.0014	ND	0.0017	ND	0.0014	ND	0.0016
Chloromethane				ND	0.0046	ND	0.0067	ND	0.0043	ND	0.0042	ND	0.0047	ND	0.0038	ND	0.0046	ND	0.0037	ND	0.0042
cis-1,2-Dichloroethene	0.19	0.19	41	ND	0.0012	ND	0.0017	ND	0.0011	ND	0.001	ND	0.0012	ND	0.00096	ND	0.0011	ND	0.00093	ND	0.001
cis-1,3-Dichloropropene				ND	0.00058	ND	0.00084	ND	0.00054	ND	0.00052	ND	0.00059	ND	0.00048	ND	0.00057	ND	0.00046	ND	0.00053
Cyclohexane				ND	0.012	ND	0.017	ND	0.011	ND	0.01	ND	0.012	ND	0.0096	ND	0.011	ND	0.0093	ND	0.01
Dibromochloromethane				ND	0.0012	ND	0.0017	ND	0.0011	ND	0.001	ND	0.0012	ND	0.00096	ND	0.0011	ND	0.00093	ND	0.001
Dichlorodifluoromethane				ND	0.012	ND	0.017	ND	0.011	ND	0.01	ND	0.012	ND	0.0096	ND	0.011	ND	0.0093	ND	0.01
Ethylbenzene	1	1	76	ND	0.0012	ND	0.0017	ND	0.0011	ND	0.001	ND	0.0012	ND	0.00096	ND	0.0011	ND	0.00093	ND	0.001
Freon-113				ND	0.0046	ND	0.0067	ND	0.0043	ND	0.0042	ND	0.0047	ND	0.0038	ND	0.0046	ND	0.0037	ND	0.0042
Isopropylbenzene				ND	0.0012	ND	0.0017	ND	0.0011	ND	0.001	ND	0.0012	ND	0.00096	ND	0.0011	ND	0.00093	ND	0.001
Methyl Acetate				ND	0.0046	ND	0.0067	ND	0.0043	ND	0.0042	ND	0.0047	ND	0.0038	ND	0.0046	ND	0.0037	ND	0.0042
Methyl cyclohexane				ND	0.0046	ND	0.0067	ND	0.0043	ND	0.0042	ND	0.0047	ND	0.0038	ND	0.0046	ND	0.0037	ND	0.0042
Methyl tert butyl ether	0.1	0.1	100	ND	0.0023	ND	0.0034	ND	0.0022	ND	0.0021	ND	0.0024	ND	0.0019	ND	0.0023	ND	0.0018	ND	0.0021
Methylene chloride	0.05	0.05	81	ND	0.0058	ND	0.0084	ND	0.0054	ND	0.0052	ND	0.0059	ND	0.0048	ND	0.0057	ND	0.0046	ND	0.0053
n-Butylbenzene	18	18	100	ND	0.0012	ND	0.0017	ND</													

Table 1

Historic Fill Material Data Summary

LOCATION				TP-411-0.5-1		TP-411-1.5-2		TP-412-2-3		DUP-031626-01		TP-413-1-2		TP-414-1.5-2		TP-415-0-0.2		DUP-031626-02		TP-415-0.5-1		
SAMPLING DATE				3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		
LAB SAMPLE ID				L2614294-09		L2614294-10		L2614294-11		L2614294-18		L2614294-12		L2614294-13		L2614294-14		L2614294-19		L2614294-15		
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		
Analyte		Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Volatile Organics by EPA 5035/8260-TIC																						
No Tentatively Identified Compounds					-	-	ND	0	-	-	ND	0	-	-	-	-	-	-	-	-	ND	0
Cyclopentane					-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00463NJ	0	-	-
Cyclotrisiloxane, Hexamethyl-					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethane, 1,1-Difluoro-					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown					0.00244J	0	-	-	0.0028J	0	-	-	0.00361J	0	0.00227J	0	0.00292J	0	-	-	-	-
Unknown					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TIC Compounds					0.00244J	0	-	-	0.0028J	0	-	-	0.00361J	0	0.00227J	0	0.00292J	0	0.00463J	0	-	-
Semivolatile Organics by GC/MS																						
1,2,4,5-Tetrachlorobenzene					ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
1,4-Dioxane		0.1		0.1	ND	0.029	ND	0.031	ND	0.03	ND	0.03	ND	0.029	ND	0.031	ND	0.026	ND	0.027	ND	0.028
2,3,4,6-Tetrachlorophenol					ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
2,4,5-Trichlorophenol					ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
2,4,6-Trichlorophenol					ND	0.11	ND	0.12	ND	0.12	ND	0.12	ND	0.12	ND	0.12	ND	0.1	ND	0.11	ND	0.11
2,4-Dichlorophenol					ND	0.17	ND	0.18	ND	0.18	ND	0.18	ND	0.18	ND	0.18	ND	0.16	ND	0.16	ND	0.17
2,4-Dimethylphenol					ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
2,4-Dinitrophenol					ND	0.92	ND	0.98	ND	0.96	ND	0.95	ND	0.94	ND	0.98	ND	0.85	ND	0.86	ND	0.9
2,4-Dinitrotoluene					ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
2,6-Dinitrotoluene					ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
2-Chloronaphthalene					ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
2-Chlorophenol					ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
2-Methylnaphthalene					ND	0.23	ND	0.24	ND	0.24	ND	0.24	ND	0.23	0.033J	0.25	ND	0.21	ND	0.21	ND	0.22
2-Methylphenol		0.33		0.33	ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
2-Nitroaniline					ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
2-Nitrophenol					ND	0.41	ND	0.44	ND	0.43	ND	0.43	ND	0.42	ND	0.44	ND	0.38	ND	0.39	ND	0.4
3,3'-Dichlorobenzidine					ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
3-Methylphenol/4-Methylphenol		0.33		0.33	ND	0.27	ND	0.29	ND	0.29	ND	0.28	ND	0.28	ND	0.3	ND	0.25	ND	0.26	ND	0.27
3-Nitroaniline					ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
4,6-Dinitro-o-cresol					ND	0.5	ND	0.53	ND	0.52	ND	0.52	ND	0.51	ND	0.53	ND	0.46	ND	0.46	ND	0.49
4-Bromophenyl phenyl ether					ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
4-Chloroaniline					ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
4-Chlorophenyl phenyl ether					ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
4-Nitroaniline					ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
4-Nitrophenol					ND	0.27	ND	0.29	ND	0.28	ND	0.28	ND	0.27	ND	0.29	ND	0.25	ND	0.25	ND	0.26
Acenaphthene		20		98	ND	0.15	0.027J	0.16	ND	0.16	ND	0.16	ND	0.16	0.032J	0.16	ND	0.14	ND	0.14	ND	0.15
Acenaphthylene		100		365	0.046J	0.15	ND	0.16	ND	0.16	0.031J	0.16	0.067J	0.16	ND	0.16	ND	0.14	ND	0.14	ND	0.15
Acetophenone					ND	0.19	ND	0.2	ND	0.2	0.024J	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
Anthracene		100		1000	0.06J	0.11	0.083J	0.12	ND	0.12	0.044J	0.12	0.087J	0.12	0.08J	0.12	ND	0.1	ND	0.11	ND	0.11
Atrazine					ND	0.15	ND	0.16	ND	0.16	ND	0.16	ND	0.16	ND	0.16	ND	0.14	ND	0.14	ND	0.15
Benzaldehyde					ND	0.25	ND	0.27	ND	0.26	ND	0.26	ND	0.26	ND	0.27	ND	0.23	ND	0.24	ND	0.25
Benzo(a)anthracene		1		1	0.29	0.11	0.21	0.12	0.039J	0.12	0.14	0.12	0.31	0.12	0.26	0.12	ND	0.1	ND	0.11	0.076J	0.11
Benzo(a)pyrene		1		22	0.29	0.15	0.19	0.16	ND	0.16	0.12J	0.16	0.26	0.16	0.23	0.16	ND	0.14	ND	0.14	0.058J	0.15
Benzo(b)fluoranthene		1		2.1	0.44	0.11	0.29	0.12	0.049J	0.12	0.18	0.12	0.42	0.12	0.33	0.12	ND	0.1	ND	0.11	0.18	0.11
Benzo(ghi)perylene		0.64		1000	0.23	0.15	0.13J	0.16	0.055J	0.16	0.18	0.16	0.15J	0.16	0.15J	0.16	ND	0.14	ND	0.14	0.089J	0.15
Benzo(k)fluoranthene		0.8		2	0.14	0.11	0.067J	0.12	ND	0.12	0.053J	0.12	0.1J	0.12	0.12	0.12	ND	0.1	ND	0.11	0.038J	0.11
Biphenyl					ND	0.43	ND	0.47	ND	0.46	ND	0.45	ND	0.44	ND	0.47	ND	0.4	ND	0.41	ND	0.43
Bis(2-chloroethoxy)methane					ND	0.2	ND	0.22	ND	0.22	ND	0.21	ND	0.21	ND	0.22	ND	0.19	ND	0.19	ND	0.2
Bis(2-chloroethyl)ether					ND	0.17	ND	0.18	ND	0.18	ND	0.18	ND									

Table 1

Historic Fill Material Data Summary

LOCATION				TP-411-0.5-1		TP-411-1.5-2		TP-412-2-3		DUP-031626-01		TP-413-1-2		TP-414-1.5-2		TP-415-0-0.2		DUP-031626-02		TP-415-0.5-1	
SAMPLING DATE				3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026	
LAB SAMPLE ID				L2614294-09		L2614294-10		L2614294-11		L2614294-18		L2614294-12		L2614294-13		L2614294-14		L2614294-19		L2614294-15	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Hexachlorobutadiene				ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
Hexachlorocyclopentadiene				ND	0.54	ND	0.58	ND	0.57	ND	0.57	ND	0.56	ND	0.59	ND	0.5	ND	0.51	ND	0.54
Hexachloroethane				ND	0.15	ND	0.16	ND	0.16	ND	0.16	ND	0.16	ND	0.16	ND	0.14	ND	0.14	ND	0.15
Indeno(1,2,3-cd)pyrene	0.5	6.6	1.4	0.21	0.15	0.13J	0.16	ND	0.16	0.093J	0.16	0.15J	0.16	0.14J	0.16	ND	0.14	ND	0.14	0.078J	0.15
Isophorone				ND	0.17	ND	0.18	ND	0.18	ND	0.18	ND	0.18	ND	0.18	ND	0.16	ND	0.16	ND	0.17
n-Nitrosodi-n-propylamine				ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
Naphthalene	12	12	100	0.026J	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	0.04J	0.2	ND	0.18	ND	0.18	ND	0.19
NDPA/DPA				ND	0.15	ND	0.16	ND	0.16	ND	0.16	ND	0.16	ND	0.16	ND	0.14	ND	0.14	ND	0.15
Nitrobenzene	0.08	0.08	1.8	ND	0.038	ND	0.041	ND	0.04	ND	0.04	ND	0.039	ND	0.041	ND	0.035	ND	0.036	ND	0.037
p-Chloro-m-cresol				ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
Pentachlorophenol	0.8	0.8	1.3	ND	0.15	ND	0.16	ND	0.16	ND	0.16	ND	0.16	ND	0.16	ND	0.14	ND	0.14	ND	0.15
Phenanthrene	1.1	1000	4.9	0.4	0.11	0.37	0.12	0.046J	0.12	0.2	0.12	0.25	0.12	0.39	0.12	ND	0.1	ND	0.11	0.035J	0.11
Phenol	0.33	0.33	100	ND	0.19	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.18	ND	0.18	ND	0.19
Pyrene	64	1000	100	0.57	0.11	0.42	0.12	0.062J	0.12	0.23	0.12	0.51	0.12	0.42	0.12	ND	0.1	ND	0.11	0.064J	0.11
Semivolatile Organics by GC/MS-TIC																					
No Tentatively Identified Compounds				-	-	ND	0	ND	0	-	-	-	-	-	-	ND	0	ND	0	ND	0
Tetrachloroethene				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	0.307J	0	-	-	0.197J	0	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alcohol				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alkane				-	-	-	-	-	-	-	-	-	-	0.191J	0	-	-	-	-	-	-
Unknown Amide				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Benzene				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Cyclohexene				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Ketone				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Ketone				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Ketone				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Organic Acid				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	0.172J	0	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	0.218J	0	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	0.225J	0	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	0.174J	0	-	-	-	-	-	-
Unknown PAH				0.226J	0	-	-	-	-	-	-	0.174J	0	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Thiophene				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TIC Compounds				0.226J	0	-	-	-	-	0.307J	0	0.174J	0	1.18J	0	-	-	-	-	-	-

Table 1

Historic Fill Material Data Summary

LOCATION				TP-411-0.5-1		TP-411-1.5-2		TP-412-2-3		DUP-031626-01		TP-413-1-2		TP-414-1.5-2		TP-415-0-0.2		DUP-031626-02		TP-415-0.5-1	
SAMPLING DATE				3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026	
LAB SAMPLE ID				L2614294-09		L2614294-10		L2614294-11		L2614294-18		L2614294-12		L2614294-13		L2614294-14		L2614294-19		L2614294-15	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Petroleum Hydrocarbon Quantitation																					
TPH (C9-C36)				39.9	38.8	17.3J	40.4	121	40.5	201	39.3	27.7J	38.9	33.1J	40.4	9.46J	33.9	8.35J	35.3	649	76.4
Polychlorinated Biphenyls by GC																					
Aroclor 1016	0.1	3.2	1	-	-	ND	0.0562	ND	0.0579	ND	0.0604	-	-	-	-	-	-	-	-	-	-
Aroclor 1221	0.1	3.2	1	-	-	ND	0.0562	ND	0.0579	ND	0.0604	-	-	-	-	-	-	-	-	-	-
Aroclor 1232	0.1	3.2	1	-	-	ND	0.0562	ND	0.0579	ND	0.0604	-	-	-	-	-	-	-	-	-	-
Aroclor 1242	0.1	3.2	1	-	-	ND	0.0562	ND	0.0579	ND	0.0604	-	-	-	-	-	-	-	-	-	-
Aroclor 1248	0.1	3.2	1	-	-	ND	0.0562	ND	0.0579	1.41	0.0604	-	-	-	-	-	-	-	-	-	-
Aroclor 1254	0.1	3.2	1	-	-	ND	0.0562	0.756	0.0579	0.272	0.0604	-	-	-	-	-	-	-	-	-	-
Aroclor 1260	0.1	3.2	1	-	-	ND	0.0562	ND	0.0579	0.125	0.0604	-	-	-	-	-	-	-	-	-	-
Aroclor 1262	0.1	3.2	1	-	-	ND	0.0562	ND	0.0579	ND	0.0604	-	-	-	-	-	-	-	-	-	-
Aroclor 1268	0.1	3.2	1	-	-	ND	0.0562	0.0584	0.0579	0.0759	0.0604	-	-	-	-	-	-	-	-	-	-
PCBs, Total	0.1	3.2	1	-	-	ND	0.0562	0.814	0.0579	1.88	0.0604	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides by GC																					
4,4'-DDD	0.0033	14	5	-	-	ND	0.00186	0.0124	0.00188	0.013	0.00194	-	-	-	-	-	-	-	-	-	-
4,4'-DDE	0.0033	9.3	3.4	-	-	0.00243	0.00186	0.0883	0.00188	0.0838	0.00194	-	-	-	-	-	-	-	-	-	-
4,4'-DDT	0.0033	135	3.8	-	-	ND	0.00186	0.251	0.00188	0.245	0.00194	-	-	-	-	-	-	-	-	-	-
Aldrin	0.0048	0.19	0.044	-	-	ND	0.00186	ND	0.00188	ND	0.00194	-	-	-	-	-	-	-	-	-	-
Alpha-BHC	0.02	0.02	0.18	-	-	ND	0.000774	ND	0.000783	ND	0.000806	-	-	-	-	-	-	-	-	-	-
Beta-BHC	0.021	0.09	0.18	-	-	ND	0.00186	ND	0.00188	ND	0.00194	-	-	-	-	-	-	-	-	-	-
Chlordane				-	-	ND	0.0155	0.219IP	0.0156	0.233IP	0.0161	-	-	-	-	-	-	-	-	-	-
cis-Chlordane	0.014	4.5	0.65	-	-	ND	0.00232	0.0393	0.00235	0.022IP	0.00242	-	-	-	-	-	-	-	-	-	-
Delta-BHC	0.04	0.1	100	-	-	ND	0.00186	ND	0.00188	ND	0.00194	-	-	-	-	-	-	-	-	-	-
Dieldrin	0.005	0.1	0.075	-	-	ND	0.00116	0.00496IP	0.00117	ND	0.00121	-	-	-	-	-	-	-	-	-	-
Endosulfan I	4.3	65	35	-	-	ND	0.00186	ND	0.00188	ND	0.00194	-	-	-	-	-	-	-	-	-	-
Endosulfan II	4.3	44	35	-	-	ND	0.00186	ND	0.00188	ND	0.00194	-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	4.3	47	35	-	-	ND	0.000774	ND	0.000783	ND	0.000806	-	-	-	-	-	-	-	-	-	-
Endrin	0.014	0.06	5.3	-	-	ND	0.000774	ND	0.000783	ND	0.000806	-	-	-	-	-	-	-	-	-	-
Endrin aldehyde				-	-	ND	0.00232	ND	0.00235	ND	0.00242	-	-	-	-	-	-	-	-	-	-
Endrin ketone				-	-	ND	0.00186	ND	0.00188	ND	0.00194	-	-	-	-	-	-	-	-	-	-
Heptachlor	0.013	0.38	0.53	-	-	ND	0.000929	ND	0.000939	ND	0.000968	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide				-	-	ND	0.00348	0.00344JIP	0.00352	0.00347JIP	0.00363	-	-	-	-	-	-	-	-	-	-
Lindane	0.025	0.05	0.21	-	-	ND	0.000774	ND	0.000783	ND	0.000806	-	-	-	-	-	-	-	-	-	-
Methoxychlor				-	-	ND	0.00348	ND	0.00352	ND	0.00363	-	-	-	-	-	-	-	-	-	-
Toxaphene				-	-	ND	0.0348	ND	0.0352	ND	0.0363	-	-	-	-	-	-	-	-	-	-
trans-Chlordane				-	-	ND	0.00232	0.0349	0.00235	0.0279	0.00242	-	-	-	-	-	-	-	-	-	-
Chlorinated Herbicides by GC																					
2,4,5-T				-	-	ND	0.204	ND	0.202	ND	0.197	-	-	-	-	-	-	-	-	-	-
2,4,5-TP (Silvex)	3.8			-	-	ND	0.204	ND	0.202	ND	0.197	-	-	-	-	-	-	-	-	-	-
2,4-D				-	-	ND	0.204	ND	0.202	ND	0.197	-	-	-	-	-	-	-	-	-	-
Total Metals																					
Aluminum, Total				6490	8.86	8410	9.61	5840	9.38	6890	9.68	6420	9.3	6850	9.68	4510	8.6	4180	8.27	5170	45.8
Antimony, Total				ND	4.43	ND	4.8	ND	4.69	ND	4.84	ND	4.65	ND	4.84	ND	4.3	ND	4.14	ND	22.9
Arsenic, Total	13	16	16	10.3	0.886	9.12	0.961	11.6	0.938	11.4	0.968	8.1	0.93	25.2	0.968	3.57	0.86	3.81	0.827	39.8	4.58
Barium, Total	410	820	410	196	0.886	128	0.961	598	0.938	344	0.968	55.6	0.93	180	0.968	27.7	0.86	25.2	0.827	288	4.58
Beryllium, Total	4.4	47	43	0.42J	0.443	0.518	0.48	0.349J	0.469	0.409J	0.484	0.32J	0.465	0.928	0.484	0.207J	0.43	0.214J	0.414	0.268J	2.29
Cadmium, Total	2.5	7.5	2.5	0.475J	0.886	0.209J	0.961	0.98	0.938	0.86J	0.968	0.174J	0.93	0.192J	0.968	ND	0.86	ND	0.827	8.69	4.58
Calcium, Total				46900	8.86	15600	9.61	36400	9.38	45800	9.68	7460	9.3	23700	9.68	74800	17.2	77800	41.4	62500	45.8
Chromium, Total				13.9	0.886	12.7	0.961	17.2	0.938	12.4	0.968	10.4	0.93	12.2	0.968	6.44	0.86	6.54	0.827	41.4	4.58
Chromium, Hexavalent	1	19	1	-	-	ND	0.984	0.231J	0.974	ND	0.971	-	-	-	-	-	-	-	-	-	-
Cobalt, Total				5.28	1.77	6.62	1.92	6.34	1.88	6	1.94	3.78	1.86	5.68	1.94	4.5	1.72	4.16	1.65	7.92J	9.15
Copper, Total	50	1720	280	104	0.886	53	0.961	67.8	0.938	33.7	0.968	11.8	0.93	94.1	0.968	29.5	0.86	32.4	0.827	980	4.58
Cyanide, Total	2.3	40	13	-	-	ND	1.2	0.92J	1.1	0.92J	1.2	-	-	-	-	-	-	-	-	-	-
Iron, Total				15800	22.2	17400	24	17800	23.4	17000	24.2	11200	23.2	9250	24.2	11000	21.5	10700	20.7	61300	114
Lead, Total	63	450	400	582	4.43	192	4.8	1500	4.69	458	4.84	69.3	4.65	228	4.84	16.9	4.3	28.6	4.14	1670	22.9
Magnesium, Total				15800	8.86	6220	9.61	12200	9.38	8380	9.68	3530	9.3	2220	9.68	21100	8.6	25000	8.27	24200	45.8
Manganese, Total	1600	2000	2000	678	0.886	1020	0.961	853	0.938	932	0.968	474	0.93	551	0.968	541	0.86	423	0.827	609	4.58
Mercury, Total	0.18	0.73	0.3	0.553	0.077	0.411	0.093	0.533	0.098	0.982	0.076	0.073J	0.081	0.473	0.089	ND	0.084	0.402	0.073	3.7	0.18

Table 1
Historic Fill Material Data Summary

LOCATION				TP-411-0.5-1		TP-411-1.5-2		TP-412-2-3		DUP-031626-01		TP-413-1-2		TP-414-1.5-2		TP-415-0-0.2		DUP-031626-02		TP-415-0.5-1	
SAMPLING DATE				3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026		3/16/2026	
LAB SAMPLE ID				L2614294-09		L2614294-10		L2614294-11		L2614294-18		L2614294-12		L2614294-13		L2614294-14		L2614294-19		L2614294-15	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Perfluorinated Alkyl Acids by EPA 1633																					
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11CI-PF3OUdS)				-	-	ND	0.00079	ND	0.000795	ND	0.000789	-	-	-	-	-	-	-	-	-	-
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)				-	-	ND	0.00079	ND	0.000795	ND	0.000789	-	-	-	-	-	-	-	-	-	-
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)				-	-	ND	0.00079	ND	0.000795	ND	0.000789	-	-	-	-	-	-	-	-	-	-
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)				-	-	ND	0.00079	ND	0.000795	ND	0.000789	-	-	-	-	-	-	-	-	-	-
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)				-	-	ND	0.00494	ND	0.00497	ND	0.00493	-	-	-	-	-	-	-	-	-	-
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)				-	-	ND	0.00494	ND	0.00497	ND	0.00493	-	-	-	-	-	-	-	-	-	-
3-Perfluoropropyl Propanoic Acid (3:3FTCA)				-	-	ND	0.000988	ND	0.000994	ND	0.000987	-	-	-	-	-	-	-	-	-	-
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)				-	-	ND	0.00079	ND	0.000795	ND	0.000789	-	-	-	-	-	-	-	-	-	-
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9CI-PF3ONS)				-	-	ND	0.00079	ND	0.000795	ND	0.000789	-	-	-	-	-	-	-	-	-	-
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)				-	-	ND	0.00079	ND	0.000795	ND	0.000789	-	-	-	-	-	-	-	-	-	-
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)				-	-	ND	0.00198	ND	0.00199	ND	0.00197	-	-	-	-	-	-	-	-	-	-
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)				-	-	ND	0.00198	ND	0.00199	ND	0.00197	-	-	-	-	-	-	-	-	-	-
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)				-	-	ND	0.000395	ND	0.000398	ND	0.000395	-	-	-	-	-	-	-	-	-	-
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)				-	-	ND	0.000395	ND	0.000398	ND	0.000395	-	-	-	-	-	-	-	-	-	-
Perfluoro-3-Methoxypropanoic Acid (PFMPA)				-	-	ND	0.000395	ND	0.000398	ND	0.000395	-	-	-	-	-	-	-	-	-	-
Perfluoro-4-Methoxybutanoic Acid (PFMBA)				-	-	ND	0.000395	ND	0.000398	ND	0.000395	-	-	-	-	-	-	-	-	-	-
Perfluorobutanesulfonic Acid (PFBS)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluorobutanoic Acid (PFBA)				-	-	ND	0.00079	ND	0.000795	ND	0.000789	-	-	-	-	-	-	-	-	-	-
Perfluorodecanesulfonic Acid (PFDS)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluorodecanoic Acid (PFDA)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluorododecanesulfonic Acid (PFDoS)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluorododecanoic Acid (PFDoA)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluoroheptanesulfonic Acid (PFHpS)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluoroheptanoic Acid (PFHpA)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluorohexanesulfonic Acid (PFHxS)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluorohexanoic Acid (PFHxA)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluorononanesulfonic Acid (PFNS)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluorononanoic Acid (PFNA)				-	-	ND	0.000198	0.000082J	0.000199	0.000077J	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluorooctanesulfonamide (PFOSA)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.001	0.044	-	-	ND	0.000198	0.000581	0.000199	0.00057	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluorooctanoic Acid (PFOA)	0.00066	0.0008	0.033	-	-	0.000093J	0.000198	0.000165J	0.000199	0.000225	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluoropentanesulfonic Acid (PFPeS)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluoropentanoic Acid (PFPeA)				-	-	ND	0.000395	ND	0.000398	ND	0.000395	-	-	-	-	-	-	-	-	-	-
Perfluorotetradecanoic Acid (PFTeDA)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluorotridecanoic Acid (PFTrDA)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-
Perfluoroundecanoic Acid (PFUnA)				-	-	ND	0.000198	ND	0.000199	ND	0.000197	-	-	-	-	-	-	-	-	-	-

Notes:
Results and soil cleanup objectives (SCO) in mg/kg
Highlighted color indicates the respective use SCO(s) exceeded. Use type SCOs are listed from left to right from most restrictive to least restrictive.
Highlighted grey indicates the analyte was not detected but the reporting limit was above the least restrictive SCO.
Blank space indicates that a SCO does not exist
Duplicates are listed after their respective parent sample.
"J" indicates estimated concentration
"I" indicates the lower value for the two columns has been reported due to obvious interference.
"P" indicates the RPD between the results for the two columns exceeds the method-specified criteria.
"NJ" indicates presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
"- " indicates that sample was not anlyazed for that parameter
"ND" indicates not detected above the associated reporting limit.

Table 1
Historic Fill Material Data Summary

LOCATION				TP-415-1-3		TP-416-1-2		SB-411-0.5-5.0		SB-414-0.0-2.0		SB-418-0.5-2.0		SB-420-0.5-2.0	
SAMPLING DATE				3/16/2026		3/16/2026		3/9/2026		3/9/2026		3/9/2026		3/10/2026	
LAB SAMPLE ID				L2614294-16		L2614294-17		L2612531-01		L2612531-03		L2612531-09		L2612891-02	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Volatile Organics by EPA 5035/8260															
1,1,1-Trichloroethane	0.68	0.68	100	ND	0.00059	ND	0.0008	ND	0.021	ND	0.017	ND	0.02	ND	0.00073
1,1,2,2-Tetrachloroethane				ND	0.00059	ND	0.0008	ND	0.021	ND	0.017	ND	0.02	ND	0.00073
1,1,2-Trichloroethane				ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014
1,1-Dichloroethane	0.27	0.27	47	ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014
1,1-Dichloroethene	0.24	0.33	0.98	ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014
1,2,4-Trichlorobenzene				ND	0.0024	ND	0.0032	ND	0.083	ND	0.067	ND	0.078	ND	0.0029
1,2,4-Trimethylbenzene	5.9	5.9	100	ND	0.0024	ND	0.0032	ND	0.083	0.048J	0.067	ND	0.078	ND	0.0029
1,2-Dibromo-3-chloropropane				ND	0.0036	ND	0.0048	ND	0.12	ND	0.1	ND	0.12	ND	0.0044
1,2-Dibromoethane				ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014
1,2-Dichlorobenzene	1.1	1.1	100	ND	0.0024	ND	0.0032	ND	0.083	ND	0.067	ND	0.078	ND	0.0029
1,2-Dichloroethane	0.02	0.02	5.8	ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014
1,2-Dichloropropane				ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014
1,3,5-Trimethylbenzene	3.1	3.1	100	ND	0.0024	ND	0.0032	ND	0.083	ND	0.067	0.022J	0.078	ND	0.0029
1,3-Dichlorobenzene	2.6	2.6	38	ND	0.0024	ND	0.0032	ND	0.083	ND	0.067	ND	0.078	ND	0.0029
1,4-Dichlorobenzene	1.8	1.8	24	ND	0.0024	ND	0.0032	ND	0.083	ND	0.067	ND	0.078	ND	0.0029
2-Butanone	0.1	0.1	100	ND	0.012	ND	0.016	ND	0.42	ND	0.34	ND	0.39	ND	0.014
2-Hexanone				ND	0.012	ND	0.016	ND	0.42	ND	0.34	ND	0.39	ND	0.014
4-Methyl-2-pentanone				ND	0.012	ND	0.016	ND	0.42	ND	0.34	ND	0.39	ND	0.014
Acetone	0.03	0.03	100	ND	0.012	ND	0.016	ND	0.42	ND	0.34	0.4	0.39	ND	0.014
Benzene	0.06	0.06	3.7	ND	0.00059	ND	0.0008	ND	0.021	0.027	0.017	ND	0.02	ND	0.00073
Bromodichloromethane				ND	0.00059	ND	0.0008	0.012J	0.021	ND	0.017	ND	0.02	ND	0.00073
Bromoform				ND	0.0048	ND	0.0064	ND	0.17	ND	0.13	ND	0.16	ND	0.0058
Bromomethane				ND	0.0024	ND	0.0032	ND	0.083	ND	0.067	ND	0.078	ND	0.0029
Carbon disulfide				ND	0.012	ND	0.016	ND	0.42	ND	0.34	ND	0.39	ND	0.014
Carbon tetrachloride	0.76	0.76	7.1	ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014
Chlorobenzene	4.5	4.5	100	ND	0.00059	ND	0.0008	ND	0.021	ND	0.017	ND	0.02	ND	0.00073
Chloroethane				ND	0.0024	ND	0.0032	ND	0.083	ND	0.067	ND	0.078	ND	0.0029
Chloroform	0.37	0.37	24	ND	0.0018	ND	0.0024	0.17	0.062	0.041J	0.05	ND	0.058	ND	0.0022
Chloromethane				ND	0.0048	ND	0.0064	ND	0.17	ND	0.13	ND	0.16	ND	0.0058
cis-1,2-Dichloroethene	0.19	0.19	41	ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014
cis-1,3-Dichloropropene				ND	0.00059	ND	0.0008	ND	0.021	ND	0.017	ND	0.02	ND	0.00073
Cyclohexane				ND	0.012	ND	0.016	ND	0.42	ND	0.34	0.031J	0.39	ND	0.014
Dibromochloromethane				ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014
Dichlorodifluoromethane				ND	0.012	ND	0.016	ND	0.42	ND	0.34	ND	0.39	ND	0.014
Ethylbenzene	1	1	76	ND	0.0012	ND	0.0016	ND	0.042	0.031J	0.034	0.028J	0.039	ND	0.0014
Freon-113				ND	0.0048	ND	0.0064	ND	0.17	ND	0.13	ND	0.16	ND	0.0058
Isopropylbenzene				ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014
Methyl Acetate				ND	0.0048	ND	0.0064	ND	0.17	ND	0.13	0.14J	0.16	ND	0.0058
Methyl cyclohexane				ND	0.0048	ND	0.0064	ND	0.17	ND	0.13	0.064J	0.16	ND	0.0058
Methyl tert butyl ether	0.1	0.1	100	ND	0.0024	ND	0.0032	ND	0.083	ND	0.067	ND	0.078	ND	0.0029
Methylene chloride	0.05	0.05	81	ND	0.0059	ND	0.008	ND	0.21	ND	0.17	ND	0.2	ND	0.0073
n-Butylbenzene	18	18	100	ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014
n-Propylbenzene	5	5	100	ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014
Naphthalene	12	12	100	ND	0.0048	ND	0.0064	ND	0.17	ND	0.13	ND	0.16	ND	0.0058
o-Xylene	0.26	1.2	100	ND	0.0012	ND	0.0016	ND	0.042	0.027J	0.034	ND	0.039	ND	0.0014
p-Isopropyltoluene				ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	2.6	0.039	ND	0.0014
p/m-Xylene	0.26	1.2	100	ND	0.0024	ND	0.0032	ND	0.083	0.071	0.067	0.065J	0.078	ND	0.0029
sec-Butylbenzene	25	25	100	ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014
Styrene				ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014
tert-Butylbenzene	11	11	100	ND	0.0024	ND	0.0032	ND	0.083	ND	0.067	ND	0.078	ND	0.0029
Tetrachloroethene	1.3	1.3	18	ND	0.00059	ND	0.0008	1.1	0.021	0.018	0.017	0.076	0.02	ND	0.00073
Toluene	0.7	0.7	100	ND	0.0012	ND	0.0016	ND	0.042	0.13	0.034	0.081	0.039	ND	0.0014
trans-1,2-Dichloroethene	0.19	0.19	100	ND	0.0018	ND	0.0024	ND	0.062	ND	0.05	ND	0.058	ND	0.0022
trans-1,3-Dichloropropene				ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014
Trichloroethene	0.47	0.47	6.4	ND	0.00059	ND	0.0008	1.7	0.021	9.7	0.017	0.089	0.02	ND	0.00073
Trichlorofluoromethane				ND	0.0048	ND	0.0064	ND	0.17	ND	0.13	ND	0.16	ND	0.0058
Vinyl chloride	0.03	0.03	0.48	ND	0.0012	ND	0.0016	ND	0.042	ND	0.034	ND	0.039	ND	0.0014

Table 1
Historic Fill Material Data Summary

LOCATION				TP-415-1-3		TP-416-1-2		SB-411-0.5-5.0		SB-414-0.0-2.0		SB-418-0.5-2.0		SB-420-0.5-2.0	
SAMPLING DATE				3/16/2026		3/16/2026		3/9/2026		3/9/2026		3/9/2026		3/10/2026	
LAB SAMPLE ID				L2614294-16		L2614294-17		L2612531-01		L2612531-03		L2612531-09		L2612891-02	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Volatile Organics by EPA 5035/8260-TIC															
No Tentatively Identified Compounds				ND	0	ND	0	-	-	-	-	-	-	ND	0
Cyclopentane				-	-	-	-	-	-	-	-	-	-	-	-
Cyclotrisiloxane, Hexamethyl-				-	-	-	-	-	-	-	-	-	-	-	-
Ethane, 1,1-Difluoro-				-	-	-	-	0.311NJ	0	0.237NJ	0	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	0.137J	0	-	-
Unknown				-	-	-	-	-	-	-	-	0.146J	0	-	-
Unknown				-	-	-	-	-	-	-	-	0.781J	0	-	-
Unknown				-	-	-	-	-	-	-	-	0.202J	0	-	-
Unknown				-	-	-	-	-	-	-	-	0.22J	0	-	-
Unknown				-	-	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	0.781J	0	-	-
Total TIC Compounds				-	-	-	-	0.311J	0	0.237J	0	2.27J	0	-	-
Semivolatile Organics by GC/MS															
1,2,4,5-Tetrachlorobenzene				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
1,4-Dioxane	0.1	0.1	5.7	ND	0.031	ND	0.032	ND	0.026	ND	0.025	ND	0.025	ND	0.028
2,3,4,6-Tetrachlorophenol				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
2,4,5-Trichlorophenol				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
2,4,6-Trichlorophenol				ND	0.12	ND	0.13	ND	0.11	ND	0.1	ND	0.1	ND	0.11
2,4-Dichlorophenol				ND	0.19	ND	0.19	ND	0.16	ND	0.15	ND	0.15	ND	0.16
2,4-Dimethylphenol				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
2,4-Dinitrophenol				ND	1	ND	1	ND	0.85	ND	0.81	ND	0.81	ND	0.88
2,4-Dinitrotoluene				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
2,6-Dinitrotoluene				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
2-Chloronaphthalene				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
2-Chlorophenol				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
2-Methylnaphthalene				0.064J	0.25	0.059J	0.26	ND	0.21	ND	0.2	ND	0.2	ND	0.22
2-Methylphenol	0.33	0.33	100	ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
2-Nitroaniline				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
2-Nitrophenol				ND	0.45	ND	0.46	ND	0.38	ND	0.36	ND	0.36	ND	0.4
3,3'-Dichlorobenzidine				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
3-Methylphenol/4- Methylphenol	0.33	0.33	100	ND	0.3	ND	0.31	ND	0.26	ND	0.24	ND	0.24	ND	0.26
3-Nitroaniline				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
4,6-Dinitro-o-cresol				ND	0.54	ND	0.56	ND	0.46	ND	0.44	ND	0.44	ND	0.48
4-Bromophenyl phenyl ether				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
4-Chloroaniline				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
4-Chlorophenyl phenyl ether				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
4-Nitroaniline				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
4-Nitrophenol				ND	0.29	ND	0.3	ND	0.25	ND	0.24	ND	0.24	ND	0.26
Acenaphthene	20	98	100	ND	0.17	ND	0.17	ND	0.14	ND	0.13	ND	0.14	ND	0.15
Acenaphthylene	100	365	100	0.096J	0.17	ND	0.17	ND	0.14	ND	0.13	ND	0.14	ND	0.15
Acetophenone				ND	0.21	0.15J	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
Anthracene	100	1000	100	0.092J	0.12	ND	0.13	ND	0.11	ND	0.1	ND	0.1	ND	0.11
Atrazine				ND	0.17	ND	0.17	ND	0.14	ND	0.13	ND	0.14	ND	0.15
Benzaldehyde				0.063J	0.28	0.25J	0.28	ND	0.23	ND	0.22	0.14J	0.22	ND	0.24
Benzo(a)anthracene	1	1	1.4	0.14	0.12	0.097J	0.13	ND	0.11	0.025J	0.1	ND	0.1	ND	0.11
Benzo(a)pyrene	1	22	1	0.17	0.17	ND	0.17	ND	0.14	ND	0.13	ND	0.14	ND	0.15
Benzo(b)fluoranthene	1	2.1	1.4	0.25	0.12	0.13	0.13	ND	0.11	0.041J	0.1	ND	0.1	ND	0.11
Benzo(ghi)perylene	0.64	1000	4.9	0.28	0.17	0.052J	0.17	ND	0.14	ND	0.13	ND	0.14	ND	0.15
Benzo(k)fluoranthene	0.8	2	4.9	0.086J	0.12	ND	0.13	ND	0.11	ND	0.1	ND	0.1	ND	0.11
Biphenyl				ND	0.48	ND	0.49	ND	0.4	ND	0.38	ND	0.38	ND	0.42
Bis(2-chloroethoxy)methane				ND	0.22	ND	0.23	ND	0.19	ND	0.18	ND	0.18	ND	0.2
Bis(2-chloroethyl)ether				ND	0.19	ND	0.19	ND	0.16	ND	0.15	ND	0.15	ND	0.16
Bis(2-chloroisopropyl)ether				ND	0.25	ND	0.26	ND	0.21	ND	0.2	ND	0.2	ND	0.22
Bis(2-ethylhexyl)phthalate				0.39	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
Butyl benzyl phthalate				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
Caprolactam				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
Carbazole				0.03J	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
Chrysene	1	1	4.9	0.15	0.12	0.4	0.13	0.042J	0.11	0.088J	0.1	ND	0.1	ND	0.11
Di-n-butylphthalate				0.064J	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
Di-n-octylphthalate				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
Dibenzo(a,h)anthracene	0.33	1000	0.33	0.039J	0.12	0.026J	0.13	ND	0.11	ND	0.1	ND	0.1	ND	0.11
Dibenzofuran	2.1	110	18	0.021J	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
Diethyl phthalate				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
Dimethyl phthalate				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
Fluoranthene	85	1000	100	0.19	0.12	0.076J	0.13	ND	0.11	0.033J	0.1	ND	0.1	ND	0.11
Fluorene	30	386	100	ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
Hexachlorobenzene	0.33	3.2	0.33	ND	0.12	ND	0.13	ND	0.11	ND	0.1	ND	0.1	ND	0.11

Table 1
Historic Fill Material Data Summary

LOCATION				TP-415-1-3		TP-416-1-2		SB-411-0.5-5.0		SB-414-0.0-2.0		SB-418-0.5-2.0		SB-420-0.5-2.0	
SAMPLING DATE				3/16/2026		3/16/2026		3/9/2026		3/9/2026		3/9/2026		3/10/2026	
LAB SAMPLE ID				L2614294-16		L2614294-17		L2612531-01		L2612531-03		L2612531-09		L2612891-02	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Hexachlorobutadiene				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
Hexachlorocyclopentadiene				ND	0.6	ND	0.61	ND	0.51	ND	0.48	ND	0.48	ND	0.52
Hexachloroethane				ND	0.17	ND	0.17	ND	0.14	ND	0.13	ND	0.14	ND	0.15
Indeno(1,2,3-cd)pyrene	0.5	6.6	1.4	0.19	0.17	ND	0.17	ND	0.14	ND	0.13	ND	0.14	ND	0.15
Isophorone				ND	0.19	ND	0.19	ND	0.16	ND	0.15	ND	0.15	ND	0.16
n-Nitrosodi-n-propylamine				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
Naphthalene	12	12	100	0.059J	0.21	0.074J	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
NDPA/DPA				ND	0.17	ND	0.17	ND	0.14	ND	0.13	ND	0.14	ND	0.15
Nitrobenzene	0.08	0.08	1.8	ND	0.042	ND	0.043	ND	0.16	ND	0.15	ND	0.15	ND	0.16
p-Chloro-m-cresol				ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
Pentachlorophenol	0.8	0.8	1.3	0.05J	0.17	ND	0.17	ND	0.14	ND	0.13	ND	0.14	ND	0.15
Phenanthrene	1.1	1000	4.9	0.16	0.12	0.17	0.13	0.041J	0.11	0.041J	0.1	0.036J	0.1	ND	0.11
Phenol	0.33	0.33	100	ND	0.21	ND	0.21	ND	0.18	ND	0.17	ND	0.17	ND	0.18
Pyrene	64	1000	100	0.18	0.12	0.11J	0.13	ND	0.11	0.039J	0.1	ND	0.1	ND	0.11
Semivolatile Organics by GC/MS-TIC															
No Tentatively Identified Compounds				-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene				-	-	-	-	1.24NJ	0	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	2.4J	0	-	-
Unknown				-	-	-	-	-	-	-	-	4.64J	0	-	-
Unknown				-	-	-	-	-	-	-	-	17.6J	0	-	-
Unknown				-	-	-	-	-	-	-	-	0.982J	0	-	-
Unknown				-	-	-	-	-	-	-	-	5.44J	0	-	-
Unknown				-	-	-	-	-	-	-	-	0.912J	0	-	-
Unknown				-	-	-	-	-	-	0.46J	0	2.84J	0	-	-
Unknown				-	-	0.372J	0	-	-	0.2J	0	15.4J	0	-	-
Unknown				-	-	0.358J	0	-	-	0.176J	0	1.7J	0	0.229J	0
Unknown				-	-	0.335J	0	-	-	0.265J	0	0.741J	0	0.954J	0
Unknown				-	-	0.389J	0	-	-	0.14J	0	0.91J	0	0.358J	0
Unknown				-	-	0.448J	0	-	-	0.21J	0	11.2J	0	0.227J	0
Unknown				0.89J	0	-	-	-	-	-	-	-	-	-	-
Unknown				-	-	-	-	-	-	-	-	1.62J	0	-	-
Unknown Alcohol				-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alkane				-	-	0.59J	0	-	-	-	-	-	-	-	-
Unknown Amide				-	-	-	-	-	-	-	-	-	-	-	-
Unknown Benzene				1.24J	0	-	-	-	-	-	-	-	-	-	-
Unknown Cyclohexene				-	-	-	-	-	-	-	-	1.1J	0	-	-
Unknown Ketone				-	-	-	-	-	-	-	-	-	-	-	-
Unknown Ketone				-	-	0.503J	0	-	-	-	-	0.723J	0	0.407J	0
Unknown Ketone				-	-	-	-	-	-	-	-	-	-	-	-
Unknown Organic Acid				-	-	-	-	-	-	0.216J	0	-	-	0.397J	0
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	0.525J	0	-	-	-	-	-	-	-	-
Unknown PAH				-	-	0.352J	0	-	-	-	-	-	-	-	-
Unknown PAH				-	-	0.349J	0	-	-	-	-	-	-	-	-
Unknown PAH				-	-	1.09J	0	-	-	-	-	-	-	-	-
Unknown PAH				-	-	0.48J	0	-	-	-	-	-	-	-	-
Unknown PAH				-	-	0.583J	0	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	0.366J	0	-	-	-	-	-	-	-	-
Unknown PAH				-	-	0.496J	0	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-
Unknown PAH				-	-	-	-	-	-	-	-	-	-	-	-
Unknown Thiophene				-	-	-	-	-	-	-	-	-	-	-	-
Total TIC Compounds				2.13J	0	7.24J	0	1.24J	0	1.67J	0	68.2J	0	2.57J	0

Table 1
Historic Fill Material Data Summary

LOCATION				TP-415-1-3		TP-416-1-2		SB-411-0.5-5.0		SB-414-0.0-2.0		SB-418-0.5-2.0		SB-420-0.5-2.0	
SAMPLING DATE				3/16/2026		3/16/2026		3/9/2026		3/9/2026		3/9/2026		3/10/2026	
LAB SAMPLE ID				L2614294-16		L2614294-17		L2612531-01		L2612531-03		L2612531-09		L2612891-02	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Petroleum Hydrocarbon Quantitation															
TPH (C9-C36)				1200	207	85.4	41.7	26	8.9	64	8.5	55	8.5	97	18
Polychlorinated Biphenyls by GC															
Aroclor 1016	0.1	3.2	1	ND	0.0601	ND	0.0603	-	-	-	-	-	-	-	-
Aroclor 1221	0.1	3.2	1	ND	0.0601	ND	0.0603	-	-	-	-	-	-	-	-
Aroclor 1232	0.1	3.2	1	ND	0.0601	ND	0.0603	-	-	-	-	-	-	-	-
Aroclor 1242	0.1	3.2	1	ND	0.0601	ND	0.0603	-	-	-	-	-	-	-	-
Aroclor 1248	0.1	3.2	1	0.31	0.0601	ND	0.0603	-	-	-	-	-	-	-	-
Aroclor 1254	0.1	3.2	1	0.592	0.0601	ND	0.0603	-	-	-	-	-	-	-	-
Aroclor 1260	0.1	3.2	1	1.35	0.0601	ND	0.0603	-	-	-	-	-	-	-	-
Aroclor 1262	0.1	3.2	1	ND	0.0601	ND	0.0603	-	-	-	-	-	-	-	-
Aroclor 1268	0.1	3.2	1	ND	0.0601	ND	0.0603	-	-	-	-	-	-	-	-
PCBs, Total	0.1	3.2	1	2.25	0.0601	ND	0.0603	-	-	-	-	-	-	-	-
Organochlorine Pesticides by GC															
4,4'-DDD	0.0033	14	5	ND	0.00203	ND	0.00203	-	-	-	-	-	-	-	-
4,4'-DDE	0.0033	9.3	3.4	ND	0.00203	ND	0.00203	-	-	-	-	-	-	-	-
4,4'-DDT	0.0033	135	3.8	ND	0.00203	ND	0.00203	-	-	-	-	-	-	-	-
Aldrin	0.0048	0.19	0.044	ND	0.00203	ND	0.00203	-	-	-	-	-	-	-	-
Alpha-BHC	0.02	0.02	0.18	ND	0.000845	ND	0.000847	-	-	-	-	-	-	-	-
Beta-BHC	0.021	0.09	0.18	ND	0.00203	ND	0.00203	-	-	-	-	-	-	-	-
Chlordane				ND	0.0169	ND	0.0169	-	-	-	-	-	-	-	-
cis-Chlordane	0.014	4.5	0.65	0.00662IP	0.00254	ND	0.00254	-	-	-	-	-	-	-	-
Delta-BHC	0.04	0.1	100	ND	0.00203	ND	0.00203	-	-	-	-	-	-	-	-
Dieldrin	0.005	0.1	0.075	ND	0.00127	ND	0.00127	-	-	-	-	-	-	-	-
Endosulfan I	4.3	65	35	ND	0.00203	ND	0.00203	-	-	-	-	-	-	-	-
Endosulfan II	4.3	44	35	ND	0.00203	ND	0.00203	-	-	-	-	-	-	-	-
Endosulfan sulfate	4.3	47	35	ND	0.000845	ND	0.000847	-	-	-	-	-	-	-	-
Endrin	0.014	0.06	5.3	ND	0.000845	ND	0.000847	-	-	-	-	-	-	-	-
Endrin aldehyde				ND	0.00254	ND	0.00254	-	-	-	-	-	-	-	-
Endrin ketone				ND	0.00203	ND	0.00203	-	-	-	-	-	-	-	-
Heptachlor	0.013	0.38	0.53	ND	0.00101	ND	0.00102	-	-	-	-	-	-	-	-
Heptachlor epoxide				ND	0.0038	ND	0.00381	-	-	-	-	-	-	-	-
Lindane	0.025	0.05	0.21	ND	0.000845	ND	0.000847	-	-	-	-	-	-	-	-
Methoxychlor				ND	0.0038	ND	0.00381	-	-	-	-	-	-	-	-
Toxaphene				ND	0.038	ND	0.0381	-	-	-	-	-	-	-	-
trans-Chlordane				0.00959IP	0.00254	ND	0.00254	-	-	-	-	-	-	-	-
Chlorinated Herbicides by GC															
2,4,5-T				ND	0.21	ND	0.211	-	-	-	-	-	-	-	-
2,4,5-TP (Silvex)	3.8			ND	0.21	ND	0.211	-	-	-	-	-	-	-	-
2,4-D				ND	0.21	ND	0.211	-	-	-	-	-	-	-	-
Total Metals															
Aluminum, Total				7090	50.5	3070	9.82	6200	8.39	12000	7.92	6750	7.73	5590	8.47
Antimony, Total				ND	25.2	ND	4.91	ND	4.2	ND	3.96	ND	3.86	ND	4.24
Arsenic, Total	13	16	16	41.1	5.05	9.7	0.982	2.96	0.839	19	0.792	4.55	0.773	3.58	0.847
Barium, Total	410	820	410	612	5.05	44.7	0.982	94.2	0.839	74.6	0.792	73.5	0.773	32.7	0.847
Beryllium, Total	4.4	47	43	0.33J	2.52	0.53	0.491	0.285J	0.42	0.704	0.396	0.363J	0.386	0.325J	0.424
Cadmium, Total	2.5	7.5	2.5	18.1	5.05	ND	0.982	ND	0.839	0.108J	0.792	ND	0.773	ND	0.847
Calcium, Total				28000	50.5	31900	9.82	31600	8.39	7440	7.92	64900	7.73	34200	8.47
Chromium, Total				91.6	5.05	5.36	0.982	8.35	0.839	15.9	0.792	9.39	0.773	6.46	0.847
Chromium, Hexavalent	1	19	1	ND	1.02	0.257J	1.03	-	-	-	-	-	-	ND	0.885
Cobalt, Total				14.4	10.1	4.14	1.96	5.89	1.68	9.23	1.58	4.86	1.54	4.77	1.69
Copper, Total	50	1720	280	1270	5.05	21.7	0.982	23.4	0.839	26.2	0.792	20.5	0.773	16.1	0.847
Cyanide, Total	2.3	40	13	ND	1.2	ND	1.2	-	-	-	-	-	-	ND	1
Iron, Total				184000	252	13400	24.5	10200	21	29800	98.9	13400	19.3	12100	21.2
Lead, Total	63	450	400	1890	25.2	66.7	4.91	24.9	4.2	20.1	3.96	15.7	3.86	10.1	4.24
Magnesium, Total				13000	50.5	6400	9.82	14300	8.39	7300	7.92	31000	7.73	19500	8.47
Manganese, Total	1600	2000	2000	992	5.05	180	0.982	448	0.839	2380	3.96	753	0.773	791	0.847
Mercury, Total	0.18	0.73	0.3	3.2	0.087	ND	0.092	0.054J	0.073	0.087	0.074	0.055J	0.069	ND	0.083
Nickel, Total	30	130	320	79.4	12.6	9.31	2.45	9	2.1	18	1.98	9.84	1.93	9.84	2.12
Potassium, Total				491J	1260	316	245	1580	210	1380	198	1380	193	965	212
Selenium, Total	3.9	4	110	3.74J	10.1	0.86J	1.96	ND	1.68	ND	1.58	ND	1.54	ND	1.69
Silver, Total	2	8.3	110	2.25J	2.52	ND	0.491	ND	0.42	ND	0.396	ND	0.386	ND	0.424
Sodium, Total				ND	1010	ND	196	148J	168	ND	158	128J	154	115J	169
Thallium, Total				ND	10.1	ND	1.96	ND	1.68	ND	1.58	ND	1.54	ND	1.69
Vanadium, Total				19.8	5.05	10.6	0.982	11.3	0.839	22.7	0.792	12.9	0.773	10.7	0.847
Zinc, Total	109	2480	6600	3140	25.2	47.6	4.91	93.6	4.2	80.3	3.96	74.8	3.86	39	4.24

Table 1
Historic Fill Material Data Summary

LOCATION				TP-415-1-3		TP-416-1-2		SB-411-0.5-5.0		SB-414-0.0-2.0		SB-418-0.5-2.0		SB-420-0.5-2.0	
SAMPLING DATE				3/16/2026		3/16/2026		3/9/2026		3/9/2026		3/9/2026		3/10/2026	
LAB SAMPLE ID				L2614294-16		L2614294-17		L2612531-01		L2612531-03		L2612531-09		L2612891-02	
SAMPLE TYPE				SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Analyte	Unrestricted	Protection of Groundwater	Restricted Residential	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Perfluorinated Alkyl Acids by EPA 1633															
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)				ND	0.00079	ND	0.000795	-	-	-	-	-	-	-	-
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)				ND	0.00079	ND	0.000795	-	-	-	-	-	-	-	-
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)				ND	0.00079	ND	0.000795	-	-	-	-	-	-	-	-
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)				ND	0.00079	ND	0.000795	-	-	-	-	-	-	-	-
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)				ND	0.00494	ND	0.00497	-	-	-	-	-	-	-	-
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)				ND	0.00494	ND	0.00497	-	-	-	-	-	-	-	-
3-Perfluoropropyl Propanoic Acid (3:3FTCA)				ND	0.000988	ND	0.000994	-	-	-	-	-	-	-	-
4,8-Dioxo-3h-Perfluorononanoic Acid (ADONA)				ND	0.00079	ND	0.000795	-	-	-	-	-	-	-	-
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)				ND	0.00079	ND	0.000795	-	-	-	-	-	-	-	-
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)				ND	0.00079	ND	0.000795	-	-	-	-	-	-	-	-
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)				ND	0.00198	ND	0.00199	-	-	-	-	-	-	-	-
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)				ND	0.00198	ND	0.00199	-	-	-	-	-	-	-	-
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)				ND	0.000395	ND	0.000398	-	-	-	-	-	-	-	-
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)				ND	0.000395	ND	0.000398	-	-	-	-	-	-	-	-
Perfluoro-3-Methoxypropanoic Acid (PFMPA)				ND	0.000395	ND	0.000398	-	-	-	-	-	-	-	-
Perfluoro-4-Methoxybutanoic Acid (PFMBA)				ND	0.000395	ND	0.000398	-	-	-	-	-	-	-	-
Perfluorobutanesulfonic Acid (PFBS)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluorobutanoic Acid (PFBA)				ND	0.00079	ND	0.000795	-	-	-	-	-	-	-	-
Perfluorodecanesulfonic Acid (PFDS)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluorodecanoic Acid (PFDA)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluorododecanesulfonic Acid (PFDoS)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluorododecanoic Acid (PFDoA)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluoroheptanesulfonic Acid (PFHpS)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluoroheptanoic Acid (PFHpA)				0.000079J	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluorohexanesulfonic Acid (PFHxS)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluorohexanoic Acid (PFHxA)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluorononanesulfonic Acid (PFNS)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluorononanoic Acid (PFNA)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluorooctanesulfonamide (PFOSA)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.001	0.044	0.00252	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluorooctanoic Acid (PFOA)	0.00066	0.0008	0.033	0.000344	0.000198	0.000097J	0.000199	-	-	-	-	-	-	-	-
Perfluoropentanesulfonic Acid (PFPeS)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluoropentanoic Acid (PFPeA)				0.000079J	0.000395	ND	0.000398	-	-	-	-	-	-	-	-
Perfluorotetradecanoic Acid (PFTeDA)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluorotridecanoic Acid (PFTrDA)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-
Perfluoroundecanoic Acid (PFUnA)				ND	0.000198	ND	0.000199	-	-	-	-	-	-	-	-

Notes:
Results and soil cleanup objectives (SCO) in mg/kg
Highlighted color indicates the respective use SCO(s) exceeded. Use type SCOs are listed from left to right from most restrictive to least restrictive.
Highlighted grey indicates the analyte was not detected but the reporting limit was above the least restrictive SCO.
Blank space indicates that a SCO does not exist
Duplicates are listed after their respective parent sample.
"J" indicates estimated concentration
"I" indicates the lower value for the two columns has been reported due to obvious interference.
"P" indicates the RPD between the results for the two columns exceeds the method-specified criteria.
"NJ" indicates presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
"- " indicates that sample was not anlyzed for that parameter
"ND" indicates not detected above the associated reporting limit.

Appendices

Appendix A

Excavation Work Plan



C&S Engineers, Inc.
499 Colonel Eileen Collins Blvd.
Syracuse, New York 13212



Excavation Work Plan (EWP)

Coventry Commons
130-132 Harrison Street, Newark, New York
NYSDEC Site No. 859036

Prepared for:



Coventry Commons LLC
1201 East Fayette Street
Syracuse, New York

Final Submitted: April 3, 2025
Draft Submitted: March 6, 2025

C&S Project No. W96.007.009

Excavation Work Plan (EWP)

**Coventry Commons
130-132 Harrison Street
Newark, Wayne County, New York
NYSDEC Site No. 859036**

Prepared by:



C&S Engineers, Inc.
499 Colonel Eileen Collins Blvd
Syracuse, New York 13212

Prepared for:



Coventry Commons LLC
1201 East Fayette Street
Syracuse, New York

I, H. Nevin Bradford, certify that I am currently a NYS registered professional engineer or Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Work 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) and DER Green Remediation (DER-31).

A handwritten signature in blue ink, appearing to read 'H. Nevin Bradford'.

H. Nevin Bradford
State of New York Professional Engineer No. 086008



April 3, 2025

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ATTACHED TABLES

NYSDEC Part 375 SCO Table

FIGURES

Figure 1	Site Location
Figure 2	Site Map

APPENDICES

Appendix A	Request to Import/Reuse Fill or Soil Form
Appendix B	Standard E&S Details and Specifications
Appendix C	Health and Safety Plan
Appendix D	Community Air Monitoring Plan
Appendix E	Best Management Practices Tracking Form

ACRONYMS

CAMP – Community Air Monitoring Program

COC – Certificate of Completion

CVOC – Chlorinated Volatile Organic Compound

C&D – Construction and Demolition

EPA – United States Environmental Protection Agency

ESA – Environmental Site Assessment

EWPP – Excavation Work Plan

HASP – Health and Safety Plan

ms/msd – Matrix Spike / Matrix Spike Duplicate

NYSDEC – New York State Department of Environmental Conservation

NYSDOH – New York State Department of Health

PCB – Polychlorinated Biphenyl

PCE – Tetrachloroethylene

PE – Professional Engineer

PFAS – Polyfluoroalkyl Substances

PID – Photoionization Detector

ppb – Parts Per Billion

ppm – Parts Per Million

QA/QC – Quality Assurance / Quality Control

QEP – Qualified Environmental Professional

SCO – Soil Cleanup Objective

SMP – Site Management Plan

SPDES – State Pollutant Discharge Elimination System

SSDS – Sub-slab Depressurization System

TAL – Target Analyte List

TCE – Trichloroethylene

TCL – Target Compound List

TOGS – Division of Water Technical and Operational Guidance Series

UST – Underground Storage Tank

ug/L – Microgram Per Liter

VOC – Volatile Organic Compound

wci – Water Column Inches

NOTIFICATION

This Excavation Work Plan (EWP) is a required element of the remedial program for the Coventry Commons site located in Newark, New York (hereinafter referred to as the "Site"). The Site location is provided in **Figure 1**. The Site is currently listed as a potential inactive hazardous waste disposal site, Site No. 859036. Coventry Commons, LLC., entered into an Order on Consent on February 24, 2025 with the New York State Department of Environmental Conservation (NYSDEC or Department) to investigate the Site. A figure showing the site location and boundaries of this site is provided in **Figure 2**. This EWP has been developed to establish guidelines and requirements to protect human health and the environment for all non-remedial work including, but not limited to:

- Demolition, alteration, or any other disturbances to building slabs, asphalt driveways, or other hardscape features
- All excavations
- Site grading
- Intrusive events which will disturb or otherwise come into contact potentially contaminated media

Remedial investigations and remedial actions are not subject to this guidance and must be conducted in accordance with a work plan which has been reviewed and approved by the New York State Department of Environmental Conservation – Division of Environmental Remediation (NYSDEC-DER) and the New York State Department of Health – Bureau of Environmental Exposure Investigation (NYSDOH-BEEI) project managers for the Site.

At least 15 days prior to the start of any of the above referenced activities, the site owner or their representative will notify the NYSDEC-DER and NYSDOH-BEEI project managers listed in the table below. These activities will not proceed without subsequent approval from the NYSDEC-DER and NYSDOH-BEEI project managers for the Site. **Table 1** includes contact information for notifications, and it will be updated as necessary to provide accurate contact information.

Table 1: Notifications

Name	Contact Information
NYSDEC - Project Manager Josh Klier	(585) 226-5357 Joshuah.Klier@dec.ny.gov
NYSDEC Project Manager Supervisor David Pratt	(585) 226-5449 David.Pratt@dec.ny.gov
NYSDEC Site Control Kelly Lewandowski	(518) 402-9547 kelly.lewandowski@dec.ny.gov
NYSDOH Project Manager Megan Rivera	(518) 402-7877 Megan.Rivera@health.ny.gov

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

Table 2: Site Contacts

Name	Contact Information
Coventry Commons, LLC – Project Manager Diana Jakimoski	(315) 472-3820 djakimoski@housingvisions.org
Allen & Desnoyers LLP – Legal Council Dale Desnoyers	(518) 426-2288 dale@allendesnoyers.com
C&S Engineers – Environmental Consultant Matt Walker	(315) 703-4323 mawalker@cscos.com

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, any modifications of truck routes, 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, and submittals (e.g., reports) to the NYSDEC documenting the completed intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP, 29 CFR 1910.120 and 29 CFR 1926 Subpart P;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP appended to this Work Plan (provided as **Appendix C**);
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with the required request to import form and all supporting documentation including, but not limited to, chemical testing results.

The NYSDEC project manager will review the notification and may impose additional requirements for the excavation that are not listed in this EWP.

1. BACKGROUND

This Excavation Work Plan has been prepared to define the methods to be employed to protect human health and the environment during all non-remedial invasive work as described in the notifications section. The following invasive activities are planned:

- Trenching for utility installation
- Excavation for subgrade building infrastructure
- Elevator pit excavation
- Limited existing subgrade building infrastructure removal
- Site grading for greenspace and parking

The location of the Site is shown on **Figure 1**.

2. NATURE AND EXTENT OF KNOWN CONTAMINATION

There were numerous historical operations at the Site that were significant with respect to the potential for environmental concerns. These included a machine shop, wastewater facility, and boiler room in the northwest portion of the Main Building, tinware manufacturing in the western portion of the Main Building, and cosmetics manufacturing in the eastern portion of the Main Building. In addition, underground storage tanks (USTs) were present on the north exterior. The locations of these former operations / features are shown on **Figure 2**.

Soil

Soil exhibiting nuisance conditions such as staining, odors, and detectable photoionization detector (PID) readings are present in the vicinity of the former USTs on the northwest portion of the Site. The associated spill was closed by NYSDEC in 2022.

Groundwater

Tetrachloroethene (PCE) and trichloroethene (TCE) are present in shallow groundwater, at levels below the NYSDEC Technical and Operational Guidance Series (TOGS) ambient water quality standard of 5 parts per billion (ppb). A Phase II Environmental Site Assessment (ESA) in 2023 included the advancement of 15 soil borings and the analysis of 15 soil samples for volatile organic compounds (VOCs). However, no apparent Chlorinated VOC (CVOC) soil source areas were identified.

Per- and polyfluoroalkyl substances (PFAS) are present at low concentrations in shallow groundwater. PFOS ranges from 0.0275 to 0.035 micrograms per liter (ug/L), as compared to a guidance value of 0.0027 ug/L. PFOA ranges from 0.0239 to 0.0448 ug/L, compared to a guidance value of 0.0067 ug/L. There are no known PFAS soil source areas onsite.

Soil Vapor

Indoor air is impacted in the Site buildings. Per NYSDOH Decision Matrix A, mitigation for TCE is required. As such, C&S designed a sub-slab depressurization system (SSDS) for the Main Building and Annex. The system is designed to maintain a negative pressure of at least 0.004 water column inches (wci) below the entire floor slab.

3. SOIL SCREENING METHODS

Visual, olfactory, and instrument-based (e.g. PID) soil screening will be performed during all excavations.

A qualified environmental professional as defined in 6 NYCRR Part 375, a professional engineer (PE) who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State will perform the screening. Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work.

Existing environmental data, field screening results, and the general spatial area for generated materials will be used to segregate said generated materials into different stockpiles. Soils cannot be mixed prior to testing for reuse or disposal. Soils which demonstrate nuisance characteristics such as gross contamination, staining, petroleum or chemical odors, or PID readings of 5 ppm or greater will be stockpiled for disposal.

Soils which do not display these characteristics will be stockpiled separately to determine if the material can be reused on-site as soil beneath an installed cover system or if the material can be used to install cover soil.

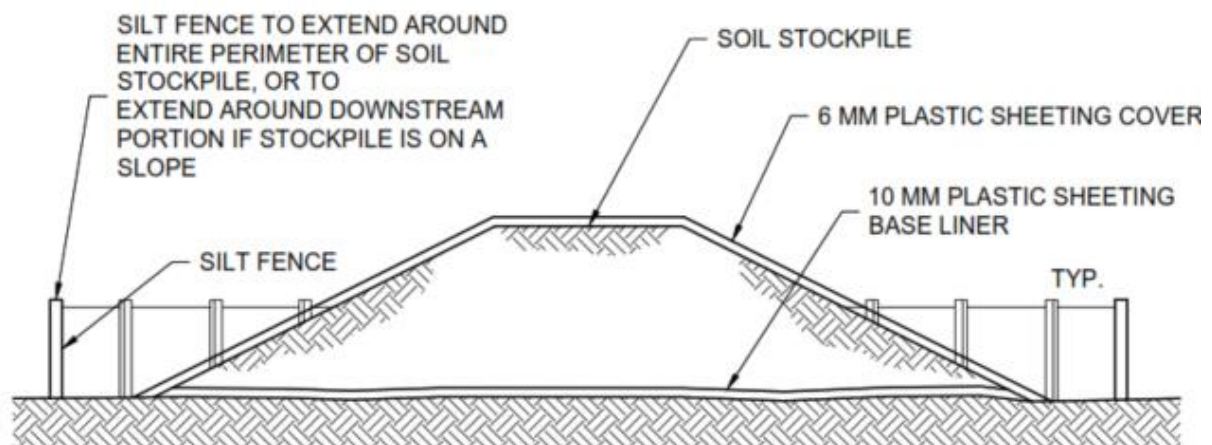
Soils which have elevated (5 ppm) PID readings, but do not exhibit evidence of gross contamination/staining, may be proposed for reuse on-site under an installed cover system provided they meet Restricted-Residential Soil Cleanup Objectives after undergoing a laboratory testing plan in accordance with DER-10 table 5.4(e)10 and with approval by the NYSDEC-DER and NYSDOH project managers.

4. SOIL STAGING METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points. Stockpiles will be kept covered at all times with appropriately anchored tarps.

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

All soil stockpiles, including certified clean imported materials, must be stockpiled according to this section. Imported materials which do not require chemical testing due to grain size (i.e. no. 2 crusher run) are exempt from this provision. Soil will be stockpiled on a stockpile containment pad that will be constructed with a plastic liner with silt fence around the perimeter to control run-on and run-off. A typical detail drawing for a stockpile containment pad is shown below.



During excavation, the remedial party will make efforts to minimize the environmental footprint. The contractor will attempt to reduce diesel fuel consumption by heavy construction machinery and equipment by:

- Selecting suitably sized and typed equipment for the intended task
- Avoiding engine idling and using machinery with automatic idle shutdown devices
- Performing routine, on-time maintenance such as oil changes to improve fuel efficiency
- Using newer more efficient models

The contractor will attempt to reduce greenhouse gas (GHG) and particulate matter (PM) emissions from mobile sources by:

- Using equipment with diesel particulate filters (DPF) and exhaust gas recirculation (EGR)
- Using equipment that burns ultra-low sulfur diesel or biodiesel from recycled byproducts

5. MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional as defined in 6 NYCRR Part 375, is a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and remedial party (if applicable) and its contractors are responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this EWP is posed by utilities or easements on the site. A site utility stakeout will be completed for all utilities prior to any ground intrusive activities at the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements). Trucks transporting contaminated soil must have either tight-fitting opaque covers that are secured on the sides and/or back, or opaque covers that are locked on all sides.

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

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials. Material accumulated from the street cleaning and egress cleaning activities will be disposed off-site at a permitted landfill facility in accordance with all applicable local, State, and Federal regulations.

To reduce fuel consumed during transfer of excavated soil or other materials to landfills, the contractor will attempt to:

- Select the closest waste receiver
- Use tractor trailers in lieu of 10-wheel dump trucks
- Reuse soils onsite as permitted by this Plan
- Investigate alternate shipping methods such as rail lines
- Identify opportunities for resource sharing with other waste haulers

The contractor will also attempt to reduce GHG and PM emissions from mobile sources by:

- Using equipment with diesel particulate filters (DPF) and exhaust gas recirculation (EGR)
- Using equipment that burns ultra-low sulfur diesel or biodiesel from recycled byproducts

6. MATERIALS TRANSPORT OFF-SITE

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

Material transported by trucks exiting the site will be secured with either tight-fitting opaque covers that are secured on the sides and/or back, or opaque covers that are locked on all sides. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck routes will be identified when submitting a given EWP notification. The proposed routes will take into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport; and community input where necessary.

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

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

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

7. MATERIAL RECYCLING AND DISPOSAL OFF-SITE

All material excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed off-site in a permitted facility in accordance with all local, State and Federal regulations. If disposal of material from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC project manager.

If disposal of material from this site is proposed for unregulated off-site disposal (i.e., clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC project manager. Unregulated off-site management of materials from this site will not occur without formal NYSDEC project manager approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, (e.g. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C&D debris recovery facility) Actual disposal quantities and associated documentation will be reported to the NYSDEC. This documentation will include, but will not be limited to 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 6 NYCRR Parts 360, 361, 362, 363, 364 and 365. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State C&D debris recovery facility (6 NYCRR Subpart 360-15 registered or permitted facility).

Asphalt millings and concrete will be taken to a permitted C&D facility.

8. MATERIALS REUSE ON-SITE

The qualified environmental professional as defined in 6 NYCRR part 375 will ensure that procedures defined for materials reuse in this EWP are followed and that unacceptable material (i.e. contaminated) does not remain on-site as part of an **installed cover system**. Contaminated on-site material, including historic fill and contaminated soil, **that is acceptable for re-use on-site will be placed below an installed demarcation layer and an installed cover system**. The material will not be reused within the installed cover system, landscaping berms, or as backfill for subsurface utilities.

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.

Table 3: DER-10 Testing Requirements

Number of Soil Samples for Soil Imported to or Exported From a Site			
Contaminant	VOCs	SVOCs, Inorganics, PCBs, Pesticides, PFAS	
Soil Quantity (Cubic Yards)	Discrete Samples	Composite	Discrete Samples/Composite
0-50	1	1	3-5 discrete samples from different locations in the fill being provided will comprise a composite sample for analysis
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1000	7	2	
> 1000	Add an additional 2 VOC and 1 composite for each additional 1000 Cubic yards or consult with DER		

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 Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (**April 2023** or date of current version, whichever is later) guidance values. Approvals for modifications to the analytical parameters must be obtained from the NYSDEC project manager prior to the sampling event.

Soil/fill material for reuse on-site will be segregated and staged as described in Sections 2 and 3 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.

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

Sampling conducted to determine acceptable reuse must include collection of all necessary quality assurance/quality control (QA/QC) samples, including, matrix spike/matrix spike duplicate (MS/MSD) samples, duplicate samples, equipment blanks for applicable parameters, etc. Laboratory deliverables will be Category B deliverables. Laboratory reporting limits will be sufficient to determine compliance with the soil cleanup objectives (SCOs). VOC samples will be collected in accordance with EPA Method 5035.

9. FLUIDS MANAGEMENT

All liquids to be removed from the site, including but not limited to, excavation dewatering, decontamination waters, and groundwater monitoring well purge and development waters, will be handled, transported, and disposed off-site at a permitted facility 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, and will be managed off-site, unless prior approval is obtained from NYSDEC.

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

10. COVER SYSTEM INSTALLATION

After the completion of soil removal and any other invasive activities, a cover system will be installed. The installed cover system will be comprised of one or more of the following: 24 inches of clean soil, asphalt pavement, concrete covered sidewalks and concrete building, etc. A demarcation layer, consisting of orange snow fencing material, white geotextile or equivalent material, etc. will be installed below the cover system to provide a visual reference to the top of the presumed contamination zone.

11. EXISITNG HARDSCAPE AREAS

The existing cover system is comprised of hardscape surfaces, including building foundations, sidewalks, and pavement.

12. 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 EWP prior to receipt at the site. A Request to Import/Reuse Fill or Soil form, which can be found at [Request To Reuse Soil](#) 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 presented in **Appendix A**.

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

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d) and DER-10 Appendix 5 for restricted residential use. Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are provided in the **Attached Table of Part 375 SCOs**. 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.

As required in the Import/Reuse Fill or Soil form, each source of backfill material will provide the following:

- Source Operator Name (i.g. "Company name" leaser of farm land or owner/operator of source)
- Location of the Fill Source (i.g. mine location address)
- State or Local Approvals (i.g. mining permits, etc.)
 - If not provided, a brief description of the history of the source land use
- Specify if the material being imported contains less than 10% fines passing a 100 sieve
 - If the material does not meet this requirement analytical samples will be collected for the following analytics and a rate as specified in DER-10, Table 5.4(e)10:
 - full suite analytical parameters including per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane
- Summary of sampling methodology and a summary of results compared to the 6NYCRR 375-6.7(d) and DER-10 Appendix 5 standards
- The following documents will be attached to each form:
 - Mining permit
 - Any historical documents
 - Analytical reports
 - Sieve or proctor reports

- Source letters

A QEP or PE or someone under their direct supervision will maintain a log of trucks delivering fill from off-site sources. The log will include the hauler, source, and date and time delivered. Each load of imported soil will be accompanied by a bill-of-lading or similar showing the material's source. All imported materials which required analytical sampling will be stockpiled as described in Section 4 above.

To reduce fuel consumed during transfer of material to the site, the contractor will attempt to:

- Select the closest providers for soil, aggregate, pavement, and concrete
- Use tractor trailers in lieu of 10-wheel dump trucks
- Reuse soils onsite as permitted by this Plan
- Identify opportunities for resource sharing with other haulers

13. STORMWATER POLLUTION PREVENTION

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

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

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

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

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

Storm drain inlet protection will be installed and maintained per manufactures instructions.

A stabilized construction entrance for controlling tracking of sediment will be installed and properly operated.

Standard erosion and sediment control detail drawings and specifications are provided in **Appendix B**.

14. 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-DER Project Manager will be notified the same day of the discovery by e-mail. The location of tanks or other sources will be surveyed. Any excavations conducted pursuant to this section will be surveyed to document the area addressed. At a minimum the following will be completed:

- The tank will be registered upon discovery and deregistered upon closure.
- Limits of the excavations will be screened using a PID to identify clean sidewalls and bottom
- Confirmation samples will be collected to document the limits of the impacted area limits was met; the number of samples will comply with DER-10.
- If an underground tank is present, the tanks will be closed and removed using the methods outlined within DER-10.
 - Any product within the tank will be removed as soon as possible.
 - Any tanks will be registered/deregistered
- The contractor completing the work under the EWP will be prepared to control any free products observed within an excavation or leaking from a tank if encountered.

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 a 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 or if an underground tank is discovered during invasive site work, it will be promptly communicated by phone within two hours to the NYSDEC Spill Hotline by calling 1-800-457-7362.

15. GREEN REMEDIATION IMPLEMENTATION

This EWP was prepared consistent with the guidance document: NYSDEC DER-31, *Green Remediation Issued August 11, 2010*.

15.1 Best Management Practices

In addition to green remediation practices described elsewhere in this plan, this section describes the Best Management Practices (BMPs) which will be implemented to achieve the green remediation concepts described within the NYSDEC DER-31. The following BMPs were identified for implementation:

- Minimize Mobilizations – C&S will schedule work to ensure excavation activities can be completed within minimal mobilizations. C&S will coordinate site activities in conjunction with other site activities (as possible) to minimize the number of trips to site for field staff.
- Sampling Equipment:
 - Rechargeable Battery-Powered Sampling Equipment – CAMP equipment (PIDs, DusTraks, Tharmis Antenna), GeoPump Peristaltic Pump, Horiba water quality meter, data loggers, and any other battery-operated equipment will be charged at the C&S facility. C&S estimated in 2022 that 26% of the electricity used at their facility is generated on-site through use of solar panels. This practice will reduce the load on the electrical grid and allow for the use of renewable sources of energy.

Personnel protective equipment (PPE) and disposable materials and supplies will need to be disposed of and cannot be recycled. Care will be taken to ensure cleanable sampling equipment and materials will be used, when possible.

All site activities related to the BMPs described above will be recorded and tracked on a C&S Green Remediation BMP Tracker, which is equivalent to the NYSDEC Form A, Summary of Green Remediation Metrics. A copy of the BMP Tracking Form is provided in **Appendix E**.

16. HEALTH AND SAFETY PLAN

To verify the safety of the workers and the local community during the performance of the work, monitoring practices of the work environment will be in place during all phases of EWP activities. A Health and Safety Plan (HASP) that details procedures for maintaining safe working conditions and minimizing the potential for exposure to hazardous material is provided in **Appendix C**.

17. COMMUNITY AIR MONITORING PLAN (CAMP)

Air sampling locations will be determined in the field and adjusted on a daily or more frequent basis. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations. Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

Community air monitoring will be conducted per the CAMP in **Appendix D**. If particulate levels at the site exceed the thresholds listed in the CAMP or if visible airborne dust or nuisance odors / VOCs are observed on the site or leaving the site, then dust and / or odor / VOC suppression techniques listed below will be employed. The intent of the CAMP is not to preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around work areas. The remedial party will also take measures listed below to prevent dust production on the site.

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

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

18. ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site, as well as onsite for occupied sites. Specific odor control methods to be used on a routine basis is not anticipated to be necessary. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include:

- a) Limiting the area of open excavations and size of soil stockpiles;
- b) Shrouding open excavations with tarps and other covers; and
- c) Using foams to cover exposed odorous soils;

If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include:

- d) Direct load-out of soils to trucks for off-site disposal;
- e) Use of chemical odorants in spray or misting systems; and,
- f) Use of staff to monitor odors in surrounding neighborhoods.

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

19. OTHER NUISANCES

If necessary, the contractor will develop plans to address rodent control and ensure compliance with local noise control ordinances.

Figures



C:\Users\cdelfat\Documents\ArcGIS\Projects\Coventry Commons Site Characterization\Coventry Commons Site Characterization.aprx

NAD 1983 2011 StatePlane New York Central FIPS 3102 Ft US
Projection: Transverse Mercator
Datum: NAD 1983 2011
False Easting: 820,208.3333
False Northing: 0.0000
Central Meridian: -76.5833
Scale Factor: 0.9999
Latitude Of Origin: 40.0000
Units: Foot US

Sources: Esri, Airphoto, USGS, NGA, NASA, CGIAR, N. Robinson, NCEAS, NLS, OS, NMA, Geodatasys, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community, Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

Legend

Site Boundary

Warehouse to be Demolished



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0 80
Feet
1 inch equals 80 feet

Site Characterization
Coventry Commons
130-132 Harrison Street, Newark, New York

PROJECT NO:	W96.007.009
DATE:	February 2025
SCALE:	AS SHOWN
DRAWN BY:	CND
DESIGNED BY:	CND
CHECKED BY:	MLW

Revised: 2/14/2025 @ 1:24 PM

SITE
MAP

Figure 2

Tables

(b) Restricted use soil cleanup objectives.

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
Metals							
Arsenic	7440-38-2	16 ^f	16 ^f	16 ^f	16 ^f	13 ^f	16 ^f
Barium	7440-39-3	350 ^f	400	400	10,000 ^d	433	820
Beryllium	7440-41-7	14	72	590	2,700	10	47
Cadmium	7440-43-9	2.5 ^f	4.3	9.3	60	4	7.5
Chromium, hexavalent ^h	18540-29-9	22	110	400	800	1 ^e	19
Chromium, trivalent ^h	16065-83-1	36	180	1,500	6,800	41	NS
Copper	7440-50-8	270	270	270	10,000 ^d	50	1,720
Total Cyanide ^h		27	27	27	10,000 ^d	NS	40
Lead	7439-92-1	400	400	1,000	3,900	63 ^f	450
Manganese	7439-96-5	2,000 ^f	2,000 ^f	10,000 ^d	10,000 ^d	1600 ^f	2,000 ^f
Total Mercury		0.81 ^j	0.81 ^j	2.8 ^j	5.7 ^j	0.18 ^f	0.73
Nickel	7440-02-0	140	310	310	10,000 ^d	30	130
Selenium	7782-49-2	36	180	1,500	6,800	3.9 ^f	4 ^f
Silver	7440-22-4	36	180	1,500	6,800	2	8.3
Zinc	7440-66-6	2200	10,000 ^d	10,000 ^d	10,000 ^d	109 ^f	2,480
PCBs/Pesticides							
2,4,5-TP Acid (Silvex)	93-72-1	58	100 ^a	500 ^b	1,000 ^c	NS	3.8
4,4'-DDE	72-55-9	1.8	8.9	62	120	0.0033 ^e	17
4,4'-DDT	50-29-3	1.7	7.9	47	94	0.0033 ^e	136
4,4'- DDD	72-54-8	2.6	13	92	180	0.0033 ^e	14
Aldrin	309-00-2	0.019	0.097	0.68	1.4	0.14	0.19
alpha-BHC	319-84-6	0.097	0.48	3.4	6.8	0.04 ^g	0.02
beta-BHC	319-85-7	0.072	0.36	3	14	0.6	0.09
Chlordane (alpha)	5103-71-9	0.91	4.2	24	47	1.3	2.9

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
delta-BHC	319-86-8	100 ^a	100 ^a	500 ^b	1,000 ^c	0.04 ^g	0.25
Dibenzofuran	132-64-9	14	59	350	1,000 ^c	NS	210
Dieldrin	60-57-1	0.039	0.2	1.4	2.8	0.006	0.1
Endosulfan I	959-98-8	4.8 ⁱ	24 ⁱ	200 ⁱ	920 ⁱ	NS	102
Endosulfan II	33213-65-9	4.8 ⁱ	24 ⁱ	200 ⁱ	920 ⁱ	NS	102
Endosulfan sulfate	1031-07-8	4.8 ⁱ	24 ⁱ	200 ⁱ	920 ⁱ	NS	1,000 ^c
Endrin	72-20-8	2.2	11	89	410	0.014	0.06
Heptachlor	76-44-8	0.42	2.1	15	29	0.14	0.38
Lindane	58-89-9	0.28	1.3	9.2	23	6	0.1
Polychlorinated biphenyls	1336-36-3	1	1	1	25	1	3.2
Semivolatiles							
Acenaphthene	83-32-9	100 ^a	100 ^a	500 ^b	1,000 ^c	20	98
Acenaphthylene	208-96-8	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	107
Anthracene	120-12-7	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1,000 ^c
Benz(a)anthracene	56-55-3	1 ^f	1 ^f	5.6	11	NS	1 ^f
Benzo(a)pyrene	50-32-8	1 ^f	1 ^f	1 ^f	1.1	2.6	22
Benzo(b)fluoranthene	205-99-2	1 ^f	1 ^f	5.6	11	NS	1.7
Benzo(g,h,i)perylene	191-24-2	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1,000 ^c
Benzo(k)fluoranthene	207-08-9	1	3.9	56	110	NS	1.7
Chrysene	218-01-9	1 ^f	3.9	56	110	NS	1 ^f
Dibenz(a,h)anthracene	53-70-3	0.33 ^e	0.33 ^e	0.56	1.1	NS	1,000 ^c
Fluoranthene	206-44-0	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1,000 ^c
Fluorene	86-73-7	100 ^a	100 ^a	500 ^b	1,000 ^c	30	386
Indeno(1,2,3-cd)pyrene	193-39-5	0.5 ^f	0.5 ^f	5.6	11	NS	8.2
m-Cresol	108-39-4	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	0.33 ^e
Naphthalene	91-20-3	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	12

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
o-Cresol	95-48-7	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	0.33 ^e
p-Cresol	106-44-5	34	100 ^a	500 ^b	1,000 ^c	NS	0.33 ^e
Pentachlorophenol	87-86-5	2.4	6.7	6.7	55	0.8 ^e	0.8 ^e
Phenanthrene	85-01-8	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1,000 ^c
Phenol	108-95-2	100 ^a	100 ^a	500 ^b	1,000 ^c	30	0.33 ^e
Pyrene	129-00-0	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1,000 ^c
Volatiles							
1,1,1-Trichloroethane	71-55-6	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	0.68
1,1-Dichloroethane	75-34-3	19	26	240	480	NS	0.27
1,1-Dichloroethene	75-35-4	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	0.33
1,2-Dichlorobenzene	95-50-1	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1.1
1,2-Dichloroethane	107-06-2	2.3	3.1	30	60	10	0.02 ^f
cis-1,2-Dichloroethene	156-59-2	59	100 ^a	500 ^b	1,000 ^c	NS	0.25
trans-1,2-Dichloroethene	156-60-5	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	0.19
1,3-Dichlorobenzene	541-73-1	17	49	280	560	NS	2.4
1,4-Dichlorobenzene	106-46-7	9.8	13	130	250	20	1.8
1,4-Dioxane	123-91-1	9.8	13	130	250	0.1 ^e	0.1 ^e
Acetone	67-64-1	100 ^a	100 ^b	500 ^b	1,000 ^c	2.2	0.05
Benzene	71-43-2	2.9	4.8	44	89	70	0.06
Butylbenzene	104-51-8	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	12
Carbon tetrachloride	56-23-5	1.4	2.4	22	44	NS	0.76
Chlorobenzene	108-90-7	100 ^a	100 ^a	500 ^b	1,000 ^c	40	1.1
Chloroform	67-66-3	10	49	350	700	12	0.37
Ethylbenzene	100-41-4	30	41	390	780	NS	1
Hexachlorobenzene	118-74-1	0.33 ^e	1.2	6	12	NS	3.2
Methyl ethyl ketone	78-93-3	100 ^a	100 ^a	500 ^b	1,000 ^c	100 ^a	0.12

Table 375-6.8(b): Restricted Use Soil Cleanup Objectives

Contaminant	CAS Number	Protection of Public Health				Protection of Ecological Resources	Protection of Ground-water
		Residential	Restricted-Residential	Commercial	Industrial		
Methyl tert-butyl ether	1634-04-4	62	100 ^a	500 ^b	1,000 ^c	NS	0.93
Methylene chloride	75-09-2	51	100 ^a	500 ^b	1,000 ^c	12	0.05
n-Propylbenzene	103-65-1	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	3.9
sec-Butylbenzene	135-98-8	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	11
tert-Butylbenzene	98-06-6	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	5.9
Tetrachloroethene	127-18-4	5.5	19	150	300	2	1.3
Toluene	108-88-3	100 ^a	100 ^a	500 ^b	1,000 ^c	36	0.7
Trichloroethene	79-01-6	10	21	200	400	2	0.47
1,2,4-Trimethylbenzene	95-63-6	47	52	190	380	NS	3.6
1,3,5- Trimethylbenzene	108-67-8	47	52	190	380	NS	8.4
Vinyl chloride	75-01-4	0.21	0.9	13	27	NS	0.02
Xylene (mixed)	1330-20-7	100 ^a	100 ^a	500 ^b	1,000 ^c	0.26	1.6

All soil cleanup objectives (SCOs) are in parts per million (ppm).

NS=Not specified. See [Technical Support Document \(TSD\)](#).

Footnotes

^a The SCOs for residential, restricted-residential and ecological resources use were capped at a maximum value of 100 ppm. See TSD section 9.3.

^b The SCOs for commercial use were capped at a maximum value of 500 ppm. See TSD section 9.3.

^c The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm. See TSD section 9.3.

^d The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3.

^e For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.

^f For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

^g This SCO is derived from data on mixed isomers of BHC.

^h The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

ⁱ This SCO is for the sum of endosulfan I, endosulfan II, and endosulfan sulfate.

^j This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts). See TSD Table 5.6-1.

Appendices

Appendix A

Request to Import/Reuse Fill or Soil Form



**NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION**



Request to Import/Reuse Fill or Soil

This form is based on the information required by DER-10, Section 5.4(e) and 6NYCRR Part 360.13. Use of this form is not a substitute for reading the applicable regulations and Technical Guidance document.

SECTION 1 – SITE BACKGROUND

The allowable site use is:

Have Ecological Resources been identified?

Is this soil originating from the site?

How many cubic yards of soil will be imported/reused?

If greater than 1000 cubic yards will be imported, enter volume to be imported:

SECTION 2 – MATERIAL OTHER THAN SOIL

Is the material to be imported gravel, rock or stone?

Does it contain less than 10%, by weight, material that passes a size 100 sieve?

Is this virgin material from a permitted mine or quarry?

Is this material recycled concrete or brick from a DEC registered processing facility?

SECTION 3 - SAMPLING

Provide a brief description of the number and type of samples collected in the space below:

Example Text: 5 discrete samples were collected and analyzed for VOCs. 2 composite samples were collected and analyzed for SVOCs, Inorganics & PCBs/Pesticides.

If the material meets requirements of DER-10 section 5.4(e)5 (other material), no chemical testing needed.

SECTION 3 CONT'D - SAMPLING

Provide a brief written summary of the sampling results or attach evaluation tables (compare to DER-10, Appendix 5):

Example Text: Arsenic was detected up to 17 ppm in 1 (of 5) samples; the allowable level is 16 ppm.

If Ecological Resources have been identified use the "If Ecological Resources are Present" column in Appendix 5.

SECTION 4 – SOURCE OF FILL

Name of person providing fill and relationship to the source:

Location where fill was obtained:

Identification of any state or local approvals as a fill source:

If no approvals are available, provide a brief history of the use of the property that is the fill source:

Provide a list of supporting documentation included with this request:

The information provided on this form is accurate and complete.

Signature

Date

Print Name

Firm

Appendix B

Standard E&S Details and Specifications

Appendix C

Health and Safety Plan



C&S Engineers, Inc.
499 Colonel Eileen Collins Blvd.
Syracuse, New York 13212



Health and Safety Plan

Coventry Commons

130-132 Harrison Street, Newark, New York

NYSDEC Site No. 859036

Prepared for:



Coventry Commons LLC
1201 East Fayette Street
Syracuse, New York

February 2025

Health and Safety Plan

**Coventry Commons
130-132 Harrison Street
Newark, Wayne County, New York
NYSDEC Site No. 859036**

Prepared by:



C&S Engineers, Inc.
499 Colonel Eileen Collins Blvd
Syracuse, New York 13212

Prepared for:



Coventry Commons LLC
1201 East Fayette Street
Syracuse, New York

EMERGENCY PHONE NUMBERS

Emergency Service.....	911
<u>Police</u> : Newark Police Department.....	(315) 331-3701
<u>Fire</u> : Newark Fire Department	(315) 331-1451
<u>Hospital</u> : RRH Newark-Wayne Community Hospital.....	(315) 332-2022
Department of Public Works	(315) 331-6199
National Response Center	(800) 424-8802
Poison Control Center	(800) 222-1222
Center for Disease Control	(800) 311-3435
NYSDEC Region 8 (Avon, New York)	(585) 226-8139
C&S Engineers	(315) 455-2000

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APPENDICES

Appendix A – Map and Directions to Hospital

Appendix B – Guidance on Incident Investigation and Reporting

SECTION 1 – GENERAL INFORMATION

This Health and Safety Plan (HASP) addresses health and safety considerations for soil disturbance activities that contractors and staff may engage in during the redevelopment or future operation of the Site at 130-132 Harrison Street, Newark, New York; hereby, referred to as (Site). Personnel engaged in the handling of contaminated soil are required to maintain current HAZWOPER training, including initial 40-hour training, on-the-job training, and consistent annual 8-hour refresher training, as per the requirements of 29 CFR 1910.120.

The content of the HASP may change or undergo revision based upon receipt of additional information.

1.1 Responsibilities

Project Manager.....

Name:

Phone:

Cell:

Health and Safety Manager.....

Name:

Phone:

Cell:

Site Health and Safety Officer.....

Name:

Phone:

Cell:

Emergency Coordinator.....

Name:

Phone:

Cell:

1.2 Applicable Standards and Regulations References

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. Where a conflict or overlap among regulations and/or these specifications exist, the most stringent requirements shall apply. The Project Manager will determine which requirements are most stringent.

1. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

- a. ANSI Z89.1, Personnel Protective Equipment-Protective Headwear for Industrial Workers-Requirements (Latest Revision)
- b. ANSI Z87.1, Occupational and Educational Personal Eye and Face Protection Devices
- c. ANSI Z9.2, Fundamentals Governing the Design and Operation of Local Exhaust Systems
- d. ANSI Z88.2-80, Practices for Respiratory Protection

2. CODE OF FEDERAL REGULATIONS (CFR)

- a. 29 CFR Subpart D Walking-Working Surfaces
- b. 29 CFR 1910 Occupational Safety and Health Standards-All Sections
- c. 29 CFR 1926 Safety and Health Regulations for Construction-All Sections
- d. 40 CFR 50.6 National Primary and Secondary Ambient Air Quality Standards for Particulate Matter
- e. 40 CFR 61 National Emissions Standards for Hazardous Air Pollutants (NESHAPS)-Subpart A-General Provisions
- f. 49 CFR 172 Hazardous Material Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

3. NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

- a. Publication Number 87-108 Respiratory Decision Logic
- b. NIOSH/OSHA Booklet 3142 Lead in Construction
- c. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (NIOSH Publication 85-115)

4. U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

- a. PUB 3126 Working with Lead in the Construction Industry
- b. 29 CFR 1910, Subpart I, Appendix B-Non-Mandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment Selection

SECTION 2 – HEALTH AND SAFETY PERSONNEL

The following information briefly describes the health and safety designations and general responsibilities for this Site.

2.1 Project Manager (PM)

The PM is responsible for the overall project including the implementation of the HASP. Specifically, this includes allocating adequate manpower, equipment, and time resources to conduct Site activities safely.

2.2 Health and Safety Manager

- Has the overall responsibility for coordinating and reporting health and safety activities and the health and safety of Site Workers.
- Must have completed, at a minimum, the OSHA 30-Hour Construction Safety Training, and either the 24-Hour training course for the Occasional Hazardous Waste Site Worker or the 40-Hour training course for the Hazardous Waste Operations Worker that meets OSHA 29 CFR 1910.
- Must have completed the 8-Hour Site supervisor/manager's course for supervisors and managers having responsibilities for hazardous waste Site operations and management.
- Directs and coordinates health and safety monitoring activities.
- Ensures that field teams utilize proper personal protective equipment (PPE).
- Conducts initial on-site specific training prior to Site Workers commencing work.
- Conducts and documents daily and periodic safety briefings.
- Ensures that field team members comply with this HASP.
- Immediately notifies the Project Manager of all accident / incidents.
- Determines upgrading or downgrading of PPE based on Site conditions and/or real time monitoring results.
- Ensures that monitoring instruments are calibrated daily or as the manufacturer's instructions determine.
- Provides daily summaries of field operations and progress to the Project Manager.
- Submits and maintains all documentation required in this HASP and any other pertinent health and safety documentation.

2.3 Health and Safety Officer (HSO)

- Must be designated by the Health and Safety Manager and at a minimum, have the OSHA 10-Hour Construction Safety Training.
- Must schedule and attend a Pre-Construction Safety Meeting with the Health and Safety Manager to discuss the Subcontractor Safety Requirements and must attend the Weekly Subcontractor Coordination Meeting.
- Responsible for ensuring subcontractors and their lower tier contractors comply with project safety requirements.

- Must make frequent and regular inspections of their work areas and activities and ensure hazards that are under their control are corrected immediately and all other hazards are reported to the Project Manager and Health and Safety Manager.
- Must report all work-related injuries, regardless of severity, to the Project Manager and the Health and Safety Manager within 24 hours after they occur.

2.4 Emergency Coordinator

- The Emergency Coordinator or his on-site designee will, in coordination with the Authority / Agency having Jurisdiction, implement the emergency response procedures outlined in Section 12 whenever conditions at the Site warrant such action.
- The Emergency Coordinator or his on-site designee will be responsible for assuring the evacuation, emergency treatment, emergency transport of personnel as necessary, and notification of emergency response units (refer to phone listing in the beginning of this HASP) and the appropriate management staff.

2.5 Site Workers

- Report any unsafe or potentially hazardous conditions to the HSO and the Health and Safety Manager.
- Maintain knowledge of the information, instructions, and emergency response actions contained in the HASP.
- Comply with rules, regulations, and procedures as set forth in this HASP, including any revisions that are instituted.
- Prevent unauthorized personnel from entering work Site.

SECTION 3 – SITE HAZARDS EVALUATION

3.1 Chemical Hazards

Site History and Nature of Chemical Hazards

The Site was historically utilized for industrial purposes including machining, tinware manufacturing, cosmetics manufacturing, jewelry manufacturing, which involved electroplating, plating, anodizing, coloring, and the generation of hazardous waste. These types of businesses utilize petroleum products and chemicals such as chlorinated solvents and potentially per- and polyfluoroalkyl substances (PFAS).

Site investigations were performed in 2020, 2022, 2023, and 2024, which included the advancement of 24 soil borings and collection and analysis of 24 soil samples, the installation and sampling of six temporary groundwater monitoring wells, and the collection and analysis of air samples. The samples did not indicate an exceedance of a soil or groundwater standard for VOCs, although low levels of chlorinated solvents are present in groundwater which may be a contributing factor to soil vapor intrusion. Air sampling data indicated exceedances of NYSDOH criteria at concentrations that requires mitigation.

Six soil and three groundwater samples were analyzed for PFAS. The majority of the PFAS compound concentrations in the soil were below laboratory detection limits. The concentration of PFOS in the sample from one boring was 0.00293 parts per million (ppm), which exceeded the Unrestricted Use Soil Cleanup Objective (SCO) of 0.00088 ppm, but is below the Restricted Residential Use SCO of 0.044 ppm. The soil results show compliance with the guidance values intended for a site with a multi-family apartment. Perfluorooctanesulfonic Acid (PFOS) in MW-202 and MW-203 ranged from 0.0275 to 0.035 micrograms per cubic liter (ug/L), as compared to a guidance value of 0.0027 ug/L. Perfluorooctanoic Acid (PFOA) in the same two wells ranged from 0.0239 to 0.0448 ug/L, compared to a guidance value of 0.0067 ug/L. MW-202 is located to the north of the building on the anticipated downgradient side of the Site, while MW-203 is located to the south of the building on the anticipated upgradient side of the Site. Although concentrations at these two locations exceed the current guidance values, the concentrations are not indicative of a groundwater source in the immediate area.

Two 12,000-gallon no. 2 fuel oil underground storage tanks (USTs) were installed some time before 1986 and removed and closed in October 2013. At the time of closure, contamination was encountered around the tanks and spill no. 1307418 was assigned. Closeout soil samples indicated only two slight exceedances of semi-volatile organic compounds (SVOCs). Benzo(b)fluoranthene was detected at 1.2 ppm compared to the Restricted Residential Use SCO of 1 ppm. Indeno(1,2,3-cd)pyrene was detected at 0.556 ppm compared to the Restricted Residential Use SCO of 0.5 ppm. Approximately 200 tons of petroleum contaminated soil was excavated and transported to the Ontario County Landfill. According to existing records, no further remedial work was required and the New York State Department of Environmental Conservation (NYSDEC) closed the spill as not meeting standards. It is expected that subsurface soil in this area may exhibit nuisance

characteristics of petroleum impacts such as odors, staining, and detectable photoionization detector (PID) readings.

Another area of potential impacts are former rail spurs that provided service to the rear and east side of the building. It is unknown if there are impacts along the former spurs. However, there is potential that herbicides were applied and hazardous substances could have spilled from the rail cars.

Common Routes of Exposure

The contaminants at the Site may enter the human body in a variety of ways. Based on the nature of site contaminants, the chemical routes of exposure anticipated from the remedial activities at this site include:

Route	Mechanism	Control
Absorption	Dermal (skin) contact with impacted soil on-site resulting in absorption of chemicals of concern through the skin and into the blood stream.	Proper use of PPE will minimize risks of exposure at the site.
Ingestion	Chemicals / materials of concern can come in direct contact with the mouth from soil or other contaminated areas (PPE, skin, tools, etc.) and enter the bloodstream through the stomach lining.	Proper care in handling PPE and tools, refraining from eating and drinking at the Site, and frequent hand washing with soap and water will minimize risks of exposure.
Inhalation	Volatile vapors and/or contaminants attached to dust and particulates can be entrained by wind and become airborne across the site and be subsequently inhaled through the nose and / or mouth. This exposure route is the most likely way for worker exposure to occur.	Conduct monitoring of air quality for VOCs in worker breathing zones. Employ methods that minimize the creation of dust and utilize dust suppression techniques to minimize dust and particulates. Respirators with appropriate filtration and organic adsorption cartridges should be available to on-site workers in case volatile compounds become a nuisance or health hazard.

3.2 Physical Hazards

Based upon the anticipated field activities, the following potential physical hazardous conditions may exist:

Category	Mechanism	Control
Mechanical Equipment	The use of typical mechanical equipment can create a potential for crushing and pinching hazards due to movement and positioning of the equipment, movement of lever arms and hydraulics, and entanglement of clothing and appendages in exposed drives and tracks. Mechanical equipment can also create a potential for impact of steel tools, masts, and cables should equipment rigging fail, or other structural failures occur during hydraulic equipment operation.	Heavy equipment work must be conducted only by trained, experienced personnel. If possible, personnel must remain outside the turning radius of large, moving equipment. At a minimum, personnel must maintain visual contact with the equipment operator. When not operational, equipment must be set and locked so that it cannot be activated, released, dropped, etc. The mechanical equipment stated above represents typical equipment that is ordinarily used during this scope of work, but is not meant to be an all-inclusive list. Similar precautions should be used around other mechanical equipment deployed to the Site that is not listed above.
Excavations and Trenches	The use of excavation/trenching such as removal of soils, installation of utilities, and site grading operations can cause potential for suffocation, crushing, or other injury from falling material. Advancement of excavation and trenches can also create possible damage/failure of any installed underground utility services and create hazards. Other hazards created can include tripping, slipping, or falling. Entering an excavation or trench could have the possibility of an explosive, flammable, toxic, or oxygen-deficient atmosphere within the excavation or trench.	Ensure compliance with OSHA's construction standard for excavations (29 CFR 1926 Subpart P). Designate a Competent Person responsible for selecting and implementing the appropriate protective system(s), assuring appropriate means of access and egress for excavations greater than four (4) feet in depth, and for ensuring that potential atmospheric and physical hazards associated with any excavation / trenching activities are completed in accordance with Subpart P and other applicable OSHA Standards.
Noise	Work around large equipment often creates excessive noise. Noise can cause workers to be startled, annoyed, and/or distracted; as well as causing pain, physical damage to the ear, and temporary and/or permanent hearing loss; and can interfere with communication.	If workers are subjected to noise exceeding an 8-hour time-weighted average sound level of 85 dBA, hearing protection will be required with an appropriate noise reduction rating to comply with 29 CFR 1910.95 and to reduce noise levels below levels of concern.
Slips/Trips/Falls	Personnel may encounter slip, trip, and fall hazards associated with	In the event slip, trip, and fall hazards cannot be removed or minimized, site

Category	Mechanism	Control
	excavations, manways, and construction debris and materials. Precautionary measures should be taken by identifying and removing slip, trip, and fall hazards prior to commencing work.	workers will be shown the location of the physical hazard and be asked to avoid it during work activities.
Fire/Explosion	The potential for fire and/or explosion emergencies is always present on the Site.	Field vehicles will be equipped with a fire extinguisher. Employees, contractors and workers must be trained in the proper use of fire suppression equipment. However, large fires that cannot be controlled with a fire extinguisher shall be handled by professionals. The proper authorities shall be notified in these instances, as well as the HSO and Health and Safety Manager.
Cold Exposure	Persons working in the outdoors in temperatures at or below freezing may be subject to frostbite. Extreme cold for a short time may cause injury to exposed body surfaces or result in a profound generalized cooling which can cause death. Areas of the body such as fingers, toes, and ears, are the most susceptible to cold stress. Ambient air temperature and wind velocity are two factors which influence the development of a cold weather injury. Local injury resulting from exposure to cold temperatures is known as "frostbite." There are several degrees of damage in which frostbite of the extremities can be categorized, as follows: ○ Frost nip or incipient frostbite is characterized by sudden bleaching or whitening of the skin. ○ Superficial frostbite occurs when the skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient. ○ Deep frostbite is characterized by tissues that are cold, pale,	Wear several layers of dry clothes so that you can vary the amount of clothing to match the conditions. If there is wind, wear a windbreaker, since wind increases the effects of cold air and in turn lowers your body's core temperature even faster. Don't get overheated. Sweat can dampen clothing and in turn lead to over-cooling. Keep hands, feet, ears, and face warm. These are the areas of the body where frostbite tends to strike first. Heart disease and the use of sedatives or excessive alcohol will make you more susceptible to cold stress. If you feel chilly or sleepy, or have pain in your extremities, go to a warm shelter to recover.

Category	Mechanism	Control
	and solid; this is an extremely serious injury.	
Heat Exposure/Stress	Heat stress can result from a number of contributing factors, including environmental conditions, clothing, and workload as well as the physical condition of the individual. Since heat stress is one of the most common injuries / symptoms associated with outdoor work conducted with direct solar load, and, in particular, because wearing PPE can increase the risk of developing heat stress, workers must be capable of recognizing the signs and symptoms of heat-related illnesses. Signs and symptoms of heat-related illnesses which all on-site personnel should be aware, include the following: - Heat rash may result from continuous exposure to heat or humid air. - Heat cramps are caused by heavy sweating and may include muscle spasms and pain in the hands, feet, and abdomen. - Heat exhaustion is indicated by pale, cool, and moist skin; heavy sweating; dizziness; nausea; and fainting. - Heat stroke is indicated by red, hot, and unusually dry skin; lack of or reduced perspiration; nausea; dizziness and confusion; rapid pulse; and coma. Immediate action must be taken to cool the body before serious injury or death occurs.	The following will steps will be taken to limit heat exposure: adjust schedules, take breaks, limit heavy work in protective clothing or in a hot environment may require more time resting than working. Schedule heavy work in the coolest part of the day. Have shaded rest shelters with chairs or benches. Drink Fluids. Sweating cools the body, but it also robs the body of fluid. Drink enough fluids to replace what you lose. You may not feel thirsty until you've become dehydrated. Drink regularly throughout the day. Don't wait until you're thirsty. Monitor for signs of potential heat exposure and stress through use of the "buddy system", with frequent communication between site personnel. Take scheduled breaks and hydrate frequently throughout the day. Maintain an adequate supply of cold water and electrolyte containing drinks in support zone of site. In the event that personnel are observed to exhibit dizziness, disorientation, heat rash, slurred speech, dry mouth, heat cramps, or other symptoms of heat stress, discontinue work immediately and move affected person(s) to a location that is free from direct sunlight and provide fluids (preferably "Gatorade" or similar product that will replenish electrolytes). Monitor condition during to evaluate whether there is notable improvement in their condition.
Utilities	Overhead and underground utilities may exist within the Work Area, which may expose workers to electrocution hazards, explosive hazards, and volatile vapors.	Dig Safely New York shall be contacted a minimum of three business days prior to initiating the field activities, to arrange for the identification and markout of buried utilities at the site. The contact number for Dig Safely New York is 1-800-962-7962.

Category	Mechanism	Control
		In the event of inadvertent damage to buried utilities, all work shall cease, and the situation shall be evaluated by the HSO.

3.3 Environmental Hazards

Based upon the anticipated field activities, the following potential environmental hazardous conditions may exist:

Category	Hazard	Control
Biological	Ticks, bees / wasps, mosquitos, spiders, snakes, rabid animals	There are no known species of poisonous spiders or snakes common to the area. Minimize potential exposure to by wearing wear long pants and safety shoes. Change clothing and carefully examine for evidence of insects and ticks upon undressing, immediately following return from the site. Avoid contact with any animals, either wild or domestic, that may be encountered while conducting the field activities and notify the local office of the New York State Department of Health (NYSDOH) in the event that animals are observed to elicit strange behavior. In the event of contact with an animal that is behaving in a strange manner, the NYSDOH should be contacted immediately.
Biological	Poison Ivy, Poison Oak, Giant Hogweed	Familiarize yourself with the characteristics and appearance of poison ivy, poison oak, and Giant Hogweed. Be cognizant of vegetation while conducting work activities. Minimize potential exposure to by wearing wear long pants and safety shoes. Change clothing immediately following return from the site.
Weather	Wet surfaces, lightning, high winds (falling objects, contaminated dust), hail, excessive heat, extreme cold, snow and ice.	Remain cognizant of weather conditions, forecasts, and changing weather conditions. Exercise extra caution during wet and inclement site conditions to minimize risk of slips and falls. Avoid work during periods of high winds to reduce risk of injury from falling objects and airborne contaminant migration. Cease work and monitor conditions in the event that lightning is observed or suspected in the area, or in the event that other weather conditions pose a health or safety hazard.

SECTION 4 – TRAINING

4.1 Site-Specific Training

Training will be provided that specifically addresses the activities, procedures, monitoring, and equipment for the Site operations prior to going on Site. Training will include familiarization with Site and facility layout, known and potential hazards, and emergency services at the Site, and details all provisions contained within this HASP. This training will also allow Site Workers to clarify anything they do not understand and to reinforce their responsibilities regarding safety and operations for their particular activity.

4.2 Safety Briefings

Project personnel will be given briefings by the HSO on a daily or as needed basis to further assist Site workers in conducting their activities safely. Pertinent information will be provided when new operations are to be conducted. Changes in work practices must be implemented due to new information made available, or if Site or environmental conditions change. Briefings will also be given to facilitate conformance with prescribed safety practices. When conformance with these practices is not occurring or if deficiencies are identified during safety audits, the project manager will be notified.

4.3 Daily Tailgate Safety Meeting

The HSO or the HSO designee will be responsible for conducting a daily tailgate safety meeting prior to start of any work activities. The contractor and workers will be responsible for attending daily tailgate safety meetings, as well as providing any additional insight into any possible hazards which might be anticipated or encountered throughout the day on the Site. The meeting will discuss any measures which will be implemented throughout the day to mitigate any hazards. The meetings are designed to create awareness of any hazards and their associated mitigation measures at the Site. If conditions at the Site change and new hazards are determined to be present, work will be stopped and an additional safety meeting will be conducted. The daily tailgate meetings discussions will be logged, as well as all who attended.

SECTION 5 – COMMUNICATIONS

5.1 Communications

A phone will be located on Site to be utilized by personnel. Cell phones will be the primary means of communicating with emergency support services/facilities.

SECTION 6 – PERSONAL PROTECTIVE EQUIPMENT

6.1 Personal Protective Equipment – General

The level of protection to be worn by field personnel will be defined and controlled by the HSO. Depending upon the type and levels of material present or anticipated at the site, varying degrees of protective equipment will be needed. If the possible hazards are unknown, a reasonable level of protection will be taken until sampling and monitoring results can ascertain potential risks. The levels of protection listed below are based on USEPA Guidelines. A list of the appropriate clothing for each level is also provided.

Level A protection must be worn when a reasonable determination has been made that the highest available level of respiratory, skin, eye, and mucous membrane protection is needed. It should be noted that while Level A provides maximum available protection, it does not protect against all possible hazards. Consideration of the heat stress that can arise from wearing Level A protection should also enter into the decision-making process. Level A protection includes:

- Open circuit, pressure-demand self-contained breathing apparatus (SCBA)
- Totally encapsulated chemical resistant suit
- Gloves, inner (surgical type)
- Gloves, outer, chemical protective
- Boots, chemical protective

Level B protection must be used when the highest level of respiratory protection is needed, but hazardous material exposure to the few unprotected areas of the body (e.g., the back of the neck) is unlikely. Level B protection includes:

- Open circuit, pressure-demand SCBA or pressure airline with escape air bottle
- Chemical protective clothing: Overalls and long-sleeved jacket; disposal chemical resistant coveralls; coveralls; one or two piece chemical splash suit with hood
- Gloves, inner (surgical type)
- Gloves, outer, chemical protective
- Boots, chemical protective

Level C must be used when the required level of respiratory protection is known, or reasonably assumed to be, not greater than the level of protection afforded by air purifying respirators; and hazardous materials exposure to the few unprotected areas of the body (e.g. the back of the neck) is unlikely. Level C protection includes:

- Full or half face air-purifying respirator
- Chemical protective clothing: Overalls and long-sleeve jacket; disposable chemical resistant coveralls; coveralls; one- or two-piece chemical splash suit
- Gloves, inner (surgical type)
- Gloves, outer, chemical protective
- Boots, chemical protective

Level D is the basic work uniform. It cannot be worn on any site where respiratory or skin hazards exist. Level D protection includes:

- Safety boots/shoes
- Safety glasses
- Hard hat with optional face shield

Note that the use of SCBA and airline equipment is contingent upon the user receiving special training in the proper use and maintenance of such equipment.

6.2 Personal Protective Equipment – Site Specific

Level D with some modification will be required when working on this Site. In addition to the basic work uniform specified by Level D protection, Nitrile gloves will be required when contacting contaminated soil. Hearing protection will be worn when power equipment is used to perform subsurface work. An upgrade to a higher level (Level C) of protection may occur if determined necessary by the HSO.

SECTION 7 – MONITORING PROCEDURES

7.1 Monitoring During Site Operations

All Site environmental monitoring should be accompanied by periodic meteorological monitoring of appropriate climatic conditions.

7.1.2 Excavation and Trenching

If soil appears to be impacted by petroleum or chemicals, monitoring will be performed during the conduct of work. A PID equipped with a 10.6 eV lamp will be utilized to monitor for the presence of volatile organic vapors within the breathing zone. Excavation spoils will also be monitored by use of the PID. The PID will be field checked for calibration accuracy three times per day (morning, lunch, and end of day). If subsurface conditions warrant, a combustible gas indicator (CGI) with oxygen alarm may also be used to monitor for the presence of combustible gases.

7.2 Action Levels

If readings on the PID exceed 15 ppm for more than fifteen minutes consecutively, then personal protective equipment should be upgraded to Level C. The air purifying respirator used with Level C protective equipment must be equipped with organic vapor cartridges. If readings on the explosive gas meter are within a range of 10%-25% of the lower exposure limit (LEL) then continuous monitoring will be implemented. Readings above 25% of the LEL indicate the potential for an explosive condition. Sources of ignition should be removed and the Site should be evacuated.

7.3 Personal Monitoring Procedures

Personal monitoring shall be performed as a contingency measure in the event that VOC concentrations are consistently above the 15-ppm action level as detected by the PID. If the concentration of VOCs is above this action level, then amendments to the HASP must be made before work can continue at the Site.

SECTION 8 – SAFETY CONSIDERATIONS FOR SITE OPERATIONS

8.1 General

Standard safe work practices that will be followed include:

- Do not climb over/under drums, or other obstacles.
- Do not work on the Site alone.
- Practice contamination avoidance, on and off-site.
- Plan activities ahead of time, and use caution when conducting concurrently running activities.
- No eating, drinking, chewing or smoking is permitted when handling contaminated material.
- Apply immediate first aid to any and all cuts, scratches, abrasions, etc.
- Be alert to your own physical condition. Watch your buddy for signs of fatigue, exposure, etc.
- A work/rest regimen will be initiated when ambient temperatures and protective clothing create a potential heat or cold stress situation.
- No work will be conducted without adequate natural light or without appropriate supervision.
- Task safety briefings will be held prior to onset of task work.
- Ignition of flammable liquids within or through improvised heating devices (barrels, etc.) or space heaters is forbidden.
- Entry into areas of spaces where toxic or explosive concentrations of gases or dust may exist without proper equipment is prohibited.
- Any injury or unusual health effect must be reported to the Site HSO.
- Prevent splashing or spilling of potentially contaminated materials.
- Use of contact lenses is prohibited while on site.
- Beards and other facial hair that would impair the effectiveness of respiratory protection are prohibited if respiratory protection is necessary.
- Field crew members should be familiar with the physical characteristics of the work, including but not limited to:
 - Wind direction in relation to potential sources
 - Accessibility to co-workers, equipment, and vehicles
 - Communication
 - Hot zones (areas of known or suspected contamination)
 - Site access
 - Nearest water sources
- The number of personnel and equipment in potentially contaminated areas should be minimized consistent with site operations.

8.2 Field Operations

The HSO or designee will be present on-site during all intrusive work (e.g. excavations, trenching) and will provide monitoring to oversee that appropriate levels of protection and safety procedures are utilized by personnel. The use of salamanders or other equipment with an open flame is prohibited and the use of protective clothing, especially hard hats and boots, will be required during drilling or other heavy equipment operations.

SECTION 9 – DECONTAMINATION PROCEDURES

9.1 General Decontamination

Decontamination involves physically removing contaminants and/or converting them chemically into innocuous substances. Only general guidance can be given on methods and techniques for decontamination. Decontamination procedures are designed to:

- Remove contaminant(s).
- Avoid spreading the contamination off Site.
- Avoid exposing unprotected personnel off Site to contaminants.

9.2 Contamination Avoidance

Contamination avoidance is the first and best method for preventing spread of contamination from a hazardous site. Each person involved in site operations must practice the basic methods of contamination avoidance listed below. Additional precautions may be required in the HASP.

- Know the limitations of all protective equipment being used.
- Use the proper tools necessary to safely conduct the work.

9.3 Reducing Contamination

Specific methods that may reduce the chance of contamination are:

- Use of remote sampling techniques.
- Opening containers by non-manual means.
- Bagging monitoring instruments.
- Use of drum grapples.
- Watering down dusty areas.

9.4 Equipment Decontamination

Equipment which will need to be decontaminated includes tools, equipment, monitoring equipment, and personal protective equipment. Items to be decontaminated will be brushed off, rinsed, and dropped into a plastic container supplied for that purpose. They will then be washed with a detergent solution and rinsed with clean water. Instrumentation that is contaminated during field operations will be carefully wiped down. Heavy equipment, if utilized for operations where it may be contaminated, will have prescribed decontamination procedures to prevent contaminant materials from potentially leaving the Site. On-site contractors, such as backhoe operators, will be responsible for decontaminating all construction equipment prior to demobilization.

SECTION 10 – DISPOSAL PROCEDURES

All discarded materials, waste materials, or other objects shall be handled in such a way as to reduce or eliminate the potential for spreading contamination, creating a sanitary hazard, or causing litter to be left on-site. All potentially contaminated materials, e.g., clothing, gloves, etc., will be bagged or drummed as necessary and segregated for proper disposal. All contaminated waste materials shall be disposed of as required by the provisions included in the contract and consistent with regulatory provisions. All non-contaminated materials shall be collected and bagged for appropriate disposal.

Spoils that are free from physical indications of contamination such as odors, staining, and sheens can be reused onsite. In cases where physical indications of contamination are evident, the affected media will be managed per applicable local, state, and federal regulations. Samples may be analyzed for toxicity characteristic leaching procedure (TCLP) VOCs, SVOCs, pesticides, herbicides, and metals; PCBs; pH (corrosivity), flash point (ignitability); reactivity; and paint filter (free liquids).

SECTION 11 – EMERGENCY RESPONSE PROCEDURES

As a result of the hazards at the Site, and the conditions under which operations are conducted, there is the possibility of emergency situations. This section establishes procedures for the implementation of an emergency plan.

11.1 Emergency Coordinator

The Emergency Coordinator or his on-site designee will, in coordination with the Authority / Agency having Jurisdiction, implement the emergency response procedures whenever conditions at the site warrant such action. The Emergency Coordinator or his on-site designee will be responsible for assuring the evacuation, emergency treatment, emergency transport of personnel or workers as necessary, and notification of emergency response units (**refer to phone listing** in the beginning of this HASP) and the appropriate management staff.

11.2 Evacuation

In the event of an emergency situation, such as fire, explosion, significant release of toxic gases, etc., all personnel will evacuate and assemble in a designated assembly area. The Emergency Coordinator or his on-site designee will have authority to contact outside services as required. Under no circumstances will incoming personnel or visitors be allowed to proceed into the area once the emergency signal has been given. The Emergency Coordinator or his on-site designee must see that access for emergency equipment is provided and that all ignition sources have been shut down once the emergency situation is established. Once the safety of all personnel is established, the Fire Department and other emergency response groups will be notified by telephone of the emergency.

11.3 Potential / Actual Fire or Explosion

Immediately evacuate the Site and notify local fire and police departments, and other appropriate emergency response groups, if LEL values are above 25% in the work zone or if an actual fire or explosion has taken place.

11.4 Environmental Incident (Spread or Release of Contamination)

Control or stop the spread of contamination if possible. Notify the Emergency Coordinator and the Project Manager. Other appropriate response groups will be notified as appropriate.

11.5 Personnel Injury

Emergency first aid shall be applied on-site as necessary. Then, decontaminate (en route if necessary) and transport the individual to nearest medical facility if needed. The ambulance / rescue squad shall be contacted for transport as necessary in an emergency. A map of directions to the nearest hospital is shown in **Attachment A**.

11.6 Personnel Exposure

- *Skin Contact:* Use copious amounts of soap and water. Wash/rinse affected area thoroughly, and then provide appropriate medical attention. Eyes should be thoroughly rinsed with water for at least 15 minutes.
- *Inhalation:* Move to fresh air and/or, if necessary, decontaminate and transport to emergency medical facility.
- *Ingestion:* Decontaminate and transport to emergency medical facility.
- *Puncture Wound/Laceration:* Decontaminate, if possible, and transport to emergency medical facility.

11.7 Adverse Weather Conditions

In the event of adverse weather conditions, the HSO will determine if work can continue without sacrificing the health and safety of field workers.

11.8 Incident Investigation and Reporting

In the event of an incident, procedures discussed in the Medical Emergency / Incident Response Protocol, presented in **Appendix B** of this HASP, shall be followed.

Attachment A

Map and Directions to Hospital

Google Maps

130 Harrison St, Newark, NY 14513 to RRH Newark-Wayne Community Hospital,
1200 Driving Park Ave, Newark, NY 14513

Drive 1.2 miles, 4 min



Imagery ©2024 Airbus, CNES / Airbus, Maxar Technologies, Map data ©2024 500 ft

- via Main St

Fastest route

4 min

1.2 miles
- via Main St and Frey St

4 min

1.2 miles
- via Driving Park Ave

4 min

1.3 miles

Explore nearby RRH Newark-Wayne Community Hospital

- Restaurants
- Hotels
- Gas stations
- Parking Lots
- More

Appendix B

Guidance on Incident Investigation and Reporting

Medical Emergency / Incident Response Protocol

Prepared by:



C&S Engineers, Inc.
499 Col Eileen Collins Blvd.
Syracuse, New York 13212



SECTION 1 – PURPOSE

From time to time employees of C&S Engineers, Inc. will sustain an injury while working on the job. While every effort is being made to prevent this, in the event of an injury or illness on the job, the following procedures will be implemented. This format may also be utilized in the event of a property damage incident.

SECTION 2 – SCOPE

This guideline applies to all C&S Engineers, Inc. job sites and employees.

SECTION 3 – GUIDELINES

3.1 First Response Procedures

Upon notification or awareness of an incident/accident with injuries or illness the Emergency Coordinator or his On-Site Designee will:

1. Ensure that the injured employee is receiving immediate first aid and medical care.
2. Notify Emergency Services (911) if injuries are severe.
3. Stabilize the work area; ensure that no one else can be injured.
4. Notify the Project Manager at the earliest possible convenience.
5. Notify the Owner/Client at the earliest possible convenience.

To assist the Health and Safety Manager in the root cause analysis, the Emergency Coordinator or his On-Site Designee will also make an attempt to:

1. Obtain the names and phone numbers of witnesses.
2. Preserve the accident scene if possible for analysis.

3.2 Injury Management

1. If the patient is stable with non-life threatening injuries, the foreman will ensure the employee is transported to the emergency medical facility listed in Section 1 of the HASP. Directions to the nearest emergency medical facility are located in **Attachment A** of the HASP.

At no time will an injured employee drive themselves to medical care.

2. If the patient has serious or life threatening injuries, the emergency coordinator or his on-site designee will notify the emergency services for the area for treatment and transport to a hospital or emergency room. Serious injuries can be considered but not limited to head injuries, loss of consciousness, severe laceration or amputation, fractured bones, burns and eye injuries.

3. Following the treatment and care of the injured employee, the emergency coordinator or his on-site designee and the project manager will initiate the completion of the first injury report. The Health & Safety Manager will assist.

3.3 Project Manager

1. Upon notification of a personal injury or illness on the job site, will notify C&S Engineers, Inc, President, Corporate Legal, and C&S Companies Health and Safety Manager.
2. Will report to the worksite to initiate the first injury report.
3. Will report to the treatment facility to check on the well-being of the injured employee.
4. The project manager will ensure that the treatment facility is aware that this is a workers compensation case.
5. Will assist the Health and Safety Manager in the analysis of the incident.

3.4 Health & Safety Manager

1. Upon notification of the personal injury will determined if it is necessary to report to the treatment facility or the accident site, depending on the nature of the injuries and the circumstances of the accident.
2. Will report to the worksite to begin a root cause analysis investigation of the accident.
3. The investigation may include interview of witnesses, field crew, and project manager, the photographing of the scene, reconstruction of the accident scene, using test instruments and taking measurements. The Health and Safety Manager may draw diagrams from the information learned.
4. The Health and Safety Manager will work with the owner/client as necessary to investigate the accident.
5. The Health & Safety manager will ensure that the site is safe to resume work.
6. The Health & Safety Manager shall initiate the New York State Compensation form requirements (C-2) and forward a copy of the C-2 to the C & S Engineers, Inc. controller for transmittal to the Compensation Carrier within 8 hours of notification of the incident or by the end of the next business day.
7. The Health and Safety manager, upon completion of the investigation, will provide the
8. Project Manager with a written investigative report (copy to the President)
9. The accident will be reviewed at the next Project Managers meeting with the intent to prevent further or similar events on other projects.
10. The Health & Safety Manager will assess the incident to determine OSHA record ability and make record if necessary on the OSHA 300 form, within five working days.



SECTION 4 - INCIDENT RESPONSE

4.1 Purpose

To prevent the occurrence of accidents on C&S Engineers, Inc., work sites and to establish a procedure for investigation and reporting of incidents occurring in, or related to C&S work activities.

4.2 Scope

Applies to all incidents related to C&S Engineers, Inc. work activities.

4.3 Definitions

Accident - An undesired event resulting in personal injury and/or property damage, and/or equipment failure.

Fatality - An injury or illness resulting in death of the individual.

Incident - Any occurrence which results in, or could potentially result in, the need for medical care or property damage. Such incidents shall include lost time accidents or illness, medical treatment cases, unplanned exposure to toxic materials or any other significant occurrence resulting in property damage or in "near misses."

Incidence Rate - the number of injuries, illnesses, or lost workdays related to a common exposure base of 100 full-time workers. The rate is calculated as:

$$N/EH \times 200,000$$

N = number of injuries and illnesses or lost workday cases; EH = total hours worked by all associates during calendar year. 200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

Injury - An injury such as a cut, fracture, sprain, amputation, etc. which results from a work accident or from a single instantaneous event in the work environment.

Lost Workday Case - A lost workday case occurs when an injured or ill employee experiences days away from work beginning with the next scheduled work day. Lost workday cases do not occur unless the employee is effected beyond the day of injury or onset of illness.

Recordable Illness - An illness that results from the course of employment and must be entered on the OSHA 300 Log and Summary of Occupational Injuries and Illnesses. These illnesses require medical treatment and evaluation of work related injury. For example, dermatitis, bronchitis, irritation of eyes, nose, and throat can result from work and non-work related incidents.



Recordable Injury - An injury that results from the course of employment and must be entered on the OSHA 300 Log and Summary of Occupational Injuries and Illnesses. These injuries require medical treatment; may involve loss of consciousness; may result in restriction of work or motion or transfer to another job; or result in a fatality.

Near Miss - An incident which, if occurring at a different time or in a different personnel or equipment configuration, would have resulted in an incident.

4.4 Responsibilities

Employees - It shall be the responsibility of all C&S Engineers, Inc. employees to report all incidents as soon as possible to the HSC, regardless of the severity.

Human Resources - has overall responsibility for maintaining accident/ incident reporting and investigations according to current regulations and recording injuries/ illness on the OSHA 300 log, and posting the OSHA 300 log.

Emergency Coordinator - It is the responsibility of the Emergency Coordinator to investigate and prepare an appropriate report of all accidents, illnesses, and incidents occurring on or related to C&S Engineers, Inc. work. The Emergency Coordinator shall complete Attachment A within 24 hours of the incident occurrence.

Health and Safety Manager (HSM) - It is the responsibility of the HSM to investigate and prepare an appropriate report of all lost time injuries and illnesses and significant incidents occurring on or related to C&S Companies. The HSM shall maintain the OSHA 300 form.

Project Managers (PM) - It shall be the PM's responsibility to promptly correct any deficiencies in personnel, training, actions, or any site or equipment deficiencies that were determined to cause or contribute to the incident investigated.

SECTION 5 – GUIDELINES

5.1 Incident Investigation

The Project Manager will immediately investigate the circumstances surrounding the incident and will make recommendations to prevent recurrence. The HSM shall be immediately notified by telephone if a serious accident/ incident occurs. The incident shall be evaluated to determine whether it is OSHA recordable. If the incident is determined to be OSHA 300 recordable, it shall be entered on the OSHA 300 form.

The Project Manager with assistance from the HSM must submit to the office an incident report form pertaining to any incident resulting in injury or property damage.



5.2 Incident Report

The completed incident report must be completed by the Project Manager within 12 hours of the incident and distributed to the HSM, and Human Resources. This form shall be maintained by Human Resources for at least five years for all OSHA recordable cases. This form serves as an equivalent to the OSHA 101 form.

5.3 Incident Follow-up Report

The Incident Follow-Up Report (Attachment B) shall be distributed with the Incident Report within one week of the incident. Delay in filing this report shall be explained in a brief memorandum.

5.4 Reporting of Fatalities or Multiple Hospitalization Accidents

Fatalities or accidents resulting in the hospitalization of three or more employees must be reported to OSHA verbally or in writing within 8 hours. The report must contain 1) circumstances surrounding the accident(s), 2) the number of fatalities, and 3) the extent of any injuries.

5.5 OSHA 300A Summary Form

Recordable cases must be entered on the log within six workdays of receipt of the information that a recordable case has occurred. The OSHA log must be kept updated to within 45 calendar days.

OSHA 300 forms must be updated during the 5 year retention period, if there is a change in the extent or outcome of an injury or illness which affects an entry on a log. If a change is necessary, the original entry should be lined out and a corrected entry made on that log. New entries should be made for previously unrecorded cases that are discovered or for cases that initially weren't recorded but were found to be recordable after the end of the year. Log totals should also be modified to reflect these changes.

5.6 Posting

The log must be summarized at the end of the calendar year and the summary must be posted from February 1 through May 31.

5.7 OSHA 300A

Facilities selected by the Bureau of Labor Statistics (BLS) to participate in surveys of occupational injuries and illnesses will receive the OSHA 300A. The data from the annual summary on the OSHA 300 log should be transferred to the OSHA 300A, other requested information provided and the form returned as instructed by the BLS.



5.8 Access to OSHA Records

All OSHA records (accident reporting forms and OSHA 300 logs) should be available for inspection and copying by authorized Federal and State government officials.

Employees, former employees, and their representatives must be given access for inspection and copying to only the log, OSHA No. 300, for the establishment in which the employee currently works or formerly worked.

SECTION 6 – REFERENCES

29 CFR Part 1904

SECTION 7 ATTACHMENTS

Attachment A - Incident Investigation Form

Attachment B - Incident Follow-Up Report

Attachment C - Establishing Recordability



ATTACHMENT A

INCIDENT INVESTIGATION FORM

Accident investigation should include:

Location: _____

Time of Day: _____

Accident Type: _____

Victim: _____

Nature of Injury: _____

Released Injury: _____

Hazardous Material: _____

Unsafe Acts: _____

Unsafe Conditions: _____

Policies, Decisions: _____

Personal Factors: _____

Environmental Factors: _____



ATTACHMENT B

INCIDENT FOLLOW-UP REPORT

Date _____

Foreman: _____

Date of Incident: _____

Site: _____

Brief description of incident: _____

Outcome of incident: _____

Physician's recommendations: _____

Date the injured returned to work: _____

Project Manager Signature: _____

Date: _____

ATTACH ANY ADDITIONAL INFORMATION TO THIS FORM

ATTACHMENT C

ATTACHMENT ESTABLISHING RECORDABILITY

1. Deciding whether to record a case and how to classify the case.

Determine whether a fatality, injury or illness is recordable.

A fatality is recordable if:

- Results from employment

An injury is recordable if:

- Results from employment and
- It requires medical treatment beyond first aid or
- Results in restricted work activity or job transfer, or
- Results in lost work day or
- Results in loss of consciousness

An illness is recordable if:

- It results from employment

2. Definition of "Resulting from Employment"

Resulting from employment is when the injury or illness results from an event or exposure in the work environment. The work environment is primarily composed of: 1) The employer's premises, and 2) other locations where associates are engaged in work- related activities or are present as a condition of their employment.

The employer's premises include company rest rooms, hallways, cafeterias, sidewalks and parking lots. Injuries occurring in these places are generally considered work related.

The employer's premises EXCLUDES employer controlled ball fields, tennis courts, golf courses, parks, swimming pools, gyms, and other similar recreational facilities, used by associates on a voluntary basis for their own benefit, primarily during off work hours.

Ordinary and customary commute, is not generally considered work related.

Employees injured or taken ill while engaged in consuming food, as part of a normal break or activity is not considered work related. Employees injured or taken ill as the result of smoking, consuming illegal drugs, alcohol or applying make up are generally not considered work related. Employee injured by un authorized horseplay is generally not considered work related, however, an employee injured as a result of a fight or other

workplace violence act, may be considered work related. Associates who travel on company business are considered to be engaged in work related activities all the time they spend in the interest of the company. This includes travel to and from customer contacts, and entertaining or being entertained for purpose of promoting or discussing business. Incidents occurring during normal living activities (eating, sleeping, recreation) or if the associate deviates from a reasonably direct route of travel are not considered OSHA recordable.

3. Distinction between Medical Treatment and First Aid.

First aid:

Any one-time treatment, and any follow up visit for the purpose of observation, of minor scratches, cuts, burns, splinters, etc., which do not ordinarily require medical care. Such one time treatment, and follow up visit for the purpose of observation, is considered first aid even though provided by a physician or registered professional personnel.

Medical Treatment (recordable):

- a) Must be treated only by a physician or licensed medical personnel.
- b) Impairs bodily function (i.e. normal use of senses, limbs, etc.).
- c) Results in damage to physical structure of a non-superficial nature (fractures).
- d) Involves complications requiring follow up medical treatment.

Appendix D

Community Air Monitoring Plan



Community Air Monitoring Plan

Coventry Commons

130-132 Harrison Street, Newark, New York

NYSDEC Site No. 859036

Prepared for:



Coventry Commons LLC
1201 East Fayette Street
Syracuse, New York

March 2025

C&S Project No. W96.007.009

Community Air Monitoring Plan (CAMP)

**Coventry Commons
130-132 Harrison Street
Newark, Wayne County, New York
NYSDEC Site No. 859036**

Prepared by:



C&S Engineers, Inc.
499 Colonel Eileen Collins Blvd
Syracuse, New York 13212

Prepared for:



Coventry Commons LLC
1201 East Fayette Street
Syracuse, New York

March 2025

C&S Project#: W96.007.009



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1.0 OVERVIEW

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the 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.

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and / or particulate levels at the perimeter of the exclusion zone or work area will be necessary.

- **Continuous monitoring** will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil / waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.
- **Periodic monitoring** for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

2.0 VOC MONITORING, RESPONSE LEVELS AND ACTIONS

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate, such as isobutylene. The equipment should 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 exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.
4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

3.0 PARTICULATE MONITORING, RESPONSE LEVELS, AND ACTIONS

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate 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 ($\mu\text{g}/\text{m}^3$) 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 $\mu\text{g}/\text{m}^3$ 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 $\mu\text{g}/\text{m}^3$ above the upwind level, work must be stopped 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 $\mu\text{g}/\text{m}^3$ of the upwind level and in preventing visible dust migration.
3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

3.1 Fugitive Dust and Particulate Monitoring

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

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.
2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:
 - a. Objects to be measured: Dust, mists or aerosols;
 - b. Measurement Ranges: 0.001 to 400 mg/m³ (1 to 400,000 µg/m³);
 - c. Precision (2-sigma) at constant temperature: +/- 10 µg/m³ for one second averaging; and +/- 1.5 g/m³ for sixty second averaging;
 - d. Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust [mmd= 2 to 3 m, g= 2.5], as aerosolized);
 - e. Resolution: 0.1% of reading or 1 g/m³, whichever is larger;
 - f. Particle Size Range of Maximum Response: 0.1-10;
 - g. Total Number of Data Points in Memory: 10,000;
 - h. Logged Data: Each data point with average concentration, time/date and data point number;
 - i. Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time / date, total elapsed time (run duration), STEL concentration and time / date occurrence, averaging (logging) period, calibration factor, and tag number;
 - j. Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
 - k. Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
 - l. Operating Temperature: -10 to 50°C (14 to 122°F); and
 - m. Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.
4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance / Quality Control (QA / QC). It is the responsibility of the remedial party to adequately supplement QA / QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record-keeping plan.
5. The action level will be established at 150 µg/m³ (15 minutes average). While conservative, this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 µg/m³, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 µg/m³ above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see bullet point 7). Should the action level of 150 µg/m³ continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM-10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed.
7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:
 - a. Applying water on haul roads;
 - b. Wetting equipment and excavation faces;
 - c. Spraying water on buckets during excavation and dumping;
 - d. Hauling materials in properly tarped or watertight containers;
 - e. Restricting vehicle speeds to 10 miles per hour (mph);
 - f. Covering excavated areas and material after excavation activity ceases; and
 - g. Reducing the excavation size and / or number of excavations.

Experience has shown that the chance of exceeding the 150 $\mu\text{g}/\text{m}^3$ action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

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

4.0 SPECIAL REQUIREMENTS

In addition or in combination with the above, the following special requirements apply for work within 20 feet of potentially exposed individuals or structures:

- When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates will reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor / dust barriers, temporary negative-pressure enclosures, or special ventilation devices will be considered to prevent exposures related to the work activities and to control dust and odors. Consideration will be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.
- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring will occur within the occupied structure(s). Depending upon the nature of contamination, chemical-specific colorimetric tubes of sufficient sensitivity may be necessary for comparing the exposure point concentrations with appropriate pre-determined response levels (response actions should also be pre-determined). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.
- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed $150 \mu\text{g}/\text{m}^3$, work activities will be suspended until controls are implemented and are successful in reducing the total particulate concentration to $150 \mu\text{g}/\text{m}^3$ or less at the monitoring point.
- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each site.

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

Appendix E

Best Management Practices Tracking Form

**(Date(s)) GREEN REMEDIATION METRICS TRACKING LOG**

(to be used for Daily / Weekly / or Phase Tracking)

Project Number / Name:**Client:****Address:****Project Start Date:****Project End Date:**

___ of ___

Equipment Emissions

Equipment Type	Fuel Type	Hours of Operation	Time of Idling or not in Use
On-site diesel equipment			
Other:			
Other:			
Other:			
Other:			
Other:			

VOC Emissions

Type of Equipment	Hours of Operation	Volume of VOCs Emitted	lbs VOCs Emitted
Soil remediation equipment			
Groundwater remediation equipment			
Other:			
Other:			

Materials & Waste Totals

(See truck logs for more detail)

Imported Materials

Type of Material	Total Quantity	Origin	# of Trips	Miles from Site
Topsoil				
Fill				
Silt Fence				
Silt Logs				
Aggregate Base Course				
Geotextile				
Solidification Additives				
Activated Carbon				
Other:				
Other:				

Total Waste Generated On-Site

Type of Material	Total Quantity	Origin	Exported?	Miles from Site
Remedy Generated Waste				
Contractor Generated Waste				
Other:				
Other:				

Solid Waste Disposal and Diversion

Type of Material	Total Quantity	Disposal Location	# of Trips	Miles from Site
TSCA Contaminated Sediment				
Non-TSCA Contaminated Sediment				
Cleared Vegetation				
Spent Granular Activated Carbon				
Monitoring Well Removal Debris				
Other:				
Other:				

Recycled / Bio-Based Products			
Type of Material	Total \$ Value	% Recycled Content	% Bio-based Content
Energy Usage			
Energy Type	KWh	Total Used	Type of Generation
Total Electricity Usage			
Total Renewable			
Other:			
Other:			
Water Usage			
Type of Water	Gallons	Reason for Usage	Provider
Total Water Usage			
Public potable water supply			
Surface water			
On-site treated groundwater			
Reclaimed treated groundwater			
Collected or diverted storm water			
Re-Injected groundwater			
Other:			
Other:			
Land / Ecosystem Tracking			
Land Disturbance Type	Total Area	Land Finished / Restored Type	COC Type
Total land area disturbed			
total land area restored			
Increase in area for storm water infiltration (vs pre-disturbed)			
Increase in area of native species plantings (vs pre-disturbed)			
Total area of land impacted by contamination			
Total area of land remediated to unrestricted use			
Total area of land remediated to other future use			

Additional Comments:

See Daily CAMP Log or Daily Truck Log for more details on work completed, materials imported/exported, and materials/resources used.

Appendix B

Green Remediation Evaluation

Remedy Component Number →		Input Summary														Remedy Component Subtotals						Total
		1	2	3	4	5	6															
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
Item		Cover System Install	Soil Source Removal	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
On-Site																						
On-site Renewable Energy																						
Renewable electricity generated on-site	MWh	0	0													0	0	0	0	0	0	0
Landfill gas combusted on-site for energy use	ccf CH ₄	0	0													0	0	0	0	0	0	0
On-site biodiesel use	gal	0	0													0	0	0	0	0	0	0
On-site biodiesel use - Other	gal	0	0													0	0	0	0	0	0	0
User-defined on-site renewable energy use #1	TBD	0	0													0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD	0	0													0	0	0	0	0	0	0
On-Site Conventional Energy																						
Grid electricity	MWh	0.222	0.0074													0.222	0.0074	0	0	0	0	0.2294
On-site diesel use - Other	Gal	0	0													0	0	0	0	0	0	0
On-site diesel use <75 hp	Gal	825.6880734	99.08256881													825.68807	99.082569	0	0	0	0	924.77064
On-site diesel use 75<hp<750	Gal	8262.362637	0													8262.3626	0	0	0	0	0	8262.3626
On-site diesel use >750 hp	Gal	0	0													0	0	0	0	0	0	0
On-site gasoline use - Other	Gal	0	0													0	0	0	0	0	0	0
On-site gasoline use <25 hp	Gal	0	0													0	0	0	0	0	0	0
On-site gasoline use >25 hp	Gal	0	0													0	0	0	0	0	0	0
On-site natural gas use	ccf	0	0													0	0	0	0	0	0	0
On-site compressed natural gas use - Other	ccf	0	0													0	0	0	0	0	0	0
On-site compressed natural gas use	ccf	0	0													0	0	0	0	0	0	0
On-site liquified petroleum gas use - Other	gal	0	0													0	0	0	0	0	0	0
On-site liquified petroleum gas use	gal	0	0													0	0	0	0	0	0	0
Other forms of on-site conventional energy use #1	TBD	0	0													0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD	0	0													0	0	0	0	0	0	0
Other On-site Emissions																						
On-site HAP process emissions	Lbs	0	0													0	0	0	0	0	0	0
On-site GHG emissions	Lbs CO2e	0	0													0	0	0	0	0	0	0
On-site carbon storage	Lbs CO2e	0	0													0	0	0	0	0	0	0

Remedy Component Number →		Input Summary														Remedy Component Subtotals						Total
		1	2	3	4	5	6															
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
		Cover System Install	Soil Source Removal	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)							
Item																1	2	3	4	5	6	
Transportation																						
Transportation Fuel Use Breakdown																						
Biodiesel use - Personnel Transport	gal	0	0													0	0	0	0	0	0	0
Biodiesel use - Personnel Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Biodiesel use - Equipment Transport	gal	0	0													0	0	0	0	0	0	0
Biodiesel use - Equipment Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Biodiesel use - Material Transport	gal	0	0													0	0	0	0	0	0	0
Biodiesel use - Material Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Biodiesel use - Waste Transport	gal	0	0													0	0	0	0	0	0	0
Biodiesel use - Waste Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Diesel use - Personnel Transport - other vehicles	gal	794.7	53													794.7	53	0	0	0	0	847.7
Diesel use - Personnel Transport - car	gal	0	0													0	0	0	0	0	0	0
Diesel use - Personnel Transport - passenger truck	gal	0	0													0	0	0	0	0	0	0
Diesel use - Personnel Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Diesel use - Equipment Transport	gal	66.4	23													66.4	23	0	0	0	0	89.4
Diesel use - Equipment Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Diesel use - Material Transport	gal	16.668	4.167													16.668	4.167	0	0	0	0	20.835
Diesel use - Material Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Diesel use - Waste Transport	gal	1751.4	81.1													1751.4	81.1	0	0	0	0	1832.5
Diesel use - Waste Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Gasoline use - Personnel Transport - other vehicles	gal	0	0													0	0	0	0	0	0	0
Gasoline use - Personnel Transport - car	gal	0	0													0	0	0	0	0	0	0
Gasoline use - Personnel Transport - passenger truck	gal	317.5	15.9													317.5	15.9	0	0	0	0	333.4
Gasoline use - Personnel Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Gasoline use - Equipment Transport	gal	0	0													0	0	0	0	0	0	0
Gasoline use - Equipment Transport - User Defined	gal	0	0													0	0	0	0	0	0	0
Natural Gas use - Personnel Transport	ccf	0	0													0	0	0	0	0	0	0
Natural Gas use - Personnel Transport - User Defined	ccf	0	0													0	0	0	0	0	0	0
Natural Gas use - Equipment Transport	ccf	0	0													0	0	0	0	0	0	0
Conventional Energy																						
Transportation diesel use	gal	2629.168	161.267													2629.168	161.267	0	0	0	0	2790.435
Transportation gasoline use	gal	317.5	15.9													317.5	15.9	0	0	0	0	333.4
Transportation natural gas use	ccf	0	0													0	0	0	0	0	0	0
User-defined conventional energy transportation #1	TBD	0	0													0	0	0	0	0	0	0
User-defined conventional energy transportation #2	TBD	0	0													0	0	0	0	0	0	0
Renewable Energy																						
Transportation biodiesel use	gal	0	0													0	0	0	0	0	0	0
User-defined renewable energy transportation #1	TBD	0	0													0	0	0	0	0	0	0
User-defined renewable energy transportation #2	TBD	0	0													0	0	0	0	0	0	0
Off-Site																						
Construction Materials																						
Aluminum, Rolled Sheet	lb	0	0													0	0	0	0	0	0	0
Asphalt, mastic	lb	0	0													0	0	0	0	0	0	0
Asphalt, paving-grade	lb	2220979	0													2220979	0	0	0	0	0	2220979
Ethanol, Corn, 95%	lb	0	0													0	0	0	0	0	0	0
Ethanol, Corn, 99.7%	lb	0	0													0	0	0	0	0	0	0
Ethanol, Petroleum, 99.7%	lb	0	0													0	0	0	0	0	0	0
Gravel/Sand Mix, 65% Gravel	lb	5935833	127500													5935833	127500	0	0	0	0	6063333
Gravel/sand/clay	lb	22491000	0													22491000	0	0	0	0	0	22491000
HDPE	lb	0	100													0	100	0	0	0	0	100
Photovoltaic system (installed)	W	0	0													0	0	0	0	0	0	0
PVC	lb	0	0													0	0	0	0	0	0	0
Portland cement, US average	lb	0	0																			
Ready-mixed concrete, 20 MPa	ft3	353700	0													353700	0	0	0	0	0	353700
Round Gravel	lb	0	0													0	0	0	0	0	0	0
Sand	lb	0	0													0	0	0	0	0	0	0
Stainless Steel	lb	0	0													0	0	0	0	0	0	0
Steel	lb	0	0													0	0	0	0	0	0	0
Other refined construction materials	lb	0	0													0	0	0	0	0	0	0
Other unrefined construction materials	lb	0	0													0	0	0	0	0	0	0
Treatment Materials & Chemicals																						
Cheese Whey	lbs	0	0													0	0	0	0	0	0	0
Emulsified vegetable oil	lbs	0	0													0	0	0	0	0	0	0

Remedy Component Number →		Input Summary																				Total
		1	2	3	4	5	6															
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Item		Cover System Install	Soil Source Removal	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	Total
Granular activated carbon, primary	lbs	0	0													0	0	0	0	0	0	0
Granular activated carbon, regenerated	lbs	0	0													0	0	0	0	0	0	0
Hydrogen Peroxide, 50% in H2O	lbs	0	0													0	0	0	0	0	0	0
Iron (II) Sulfate	lbs	0	0													0	0	0	0	0	0	0
Lime, Hydrated, Packed	lbs	0	0													0	0	0	0	0	0	0
Molasses	lbs	0	0													0	0	0	0	0	0	0
Phosphoric Acid, 70% in H2O	lbs	0	0													0	0	0	0	0	0	0
Potassium Permanganate	lbs	0	0													0	0	0	0	0	0	0
Sodium Hydroxide, 50% in H2O	lbs	0	0													0	0	0	0	0	0	0
Other Treatment Chemicals & Materials	lbs	0	0													0	0	0	0	0	0	0
Material Type																						
Total Virgin Refined Materials	tons	17342.156	63.8													17342.156	63.8	0	0	0	0	17405.956
Total Recycled Refined Materials	tons	0	0													0	0	0	0	0	0	0
Total Reused Refined Materials	tons	0	0													0	0	0	0	0	0	0
Total Refined Material	tons	17342.156	63.8													17342.156	63.8	0	0	0	0	17405.956
Total Virgin Unrefined Materials	tons	11245.5	0													11245.5	0	0	0	0	0	11245.5
Total Recycled Unrefined Materials	tons	0	0													0	0	0	0	0	0	0
Total Reused Unrefined Materials	tons	0	0													0	0	0	0	0	0	0
Total Unrefined Material	tons	11245.5	0													11245.5	0	0	0	0	0	11245.5
Fuel Processing																						
Biodiesel produced	gal	0	0													0	0	0	0	0	0	0
Diesel produced	gal	11717.21871	260.3495688													11717.219	260.34957	0	0	0	0	11977.568
Gasoline produced	gal	317.5	15.9													317.5	15.9	0	0	0	0	333.4
Compressed natural gas produced	ccf	0	0													0	0	0	0	0	0	0
Liquified petroleum gas produced	gal	0	0													0	0	0	0	0	0	0
Natural gas produced	ccf	0	0													0	0	0	0	0	0	0
Water Use																						
Public Water Supply	gal x 1000	5	0.5													5	0.5	0	0	0	0	5.5
Extracted Groundwater	gal x 1000	0	0													0	0	0	0	0	0	0
Surface Water	gal x 1000	0	0													0	0	0	0	0	0	0
Reclaimed Water	gal x 1000	0	0													0	0	0	0	0	0	0
Collected/Diverted Storm Water	gal x 1000	0	0													0	0	0	0	0	0	0
User-defined water resource #1	gal x 1000	0	0													0	0	0	0	0	0	0
User-defined water resource #2	gal x 1000	0	0													0	0	0	0	0	0	0
Waste/Recycle Handling																						
Hazardous waste incineration	lbs	0	0													0	0	0	0	0	0	0
Off-site waste water treatment (POTW)	gal x 1000	0	0													0	0	0	0	0	0	0
Off-site non-hazardous waste landfill	tons	4800	100.6													4800	100.6	0	0	0	0	4900.6
Off-site hazardous waste landfill	tons	0	0													0	0	0	0	0	0	0
Recycled/Reused On-Site	tons	1149	0													1149	0	0	0	0	0	1149
Recycled/Reused Off-Site	tons	1081	0													1081	0	0	0	0	0	1081
Solid Waste Totals																						
Total Non-Hazardous Waste	tons	4800	100.6													4800	100.6	0	0	0	0	4900.6
Total Hazardous Waste	tons	0	0													0	0	0	0	0	0	0
Total Recycled/Reused	tons	2230	0													2230	0	0	0	0	0	2230
Total Waste (all types)	tons	7030	100.6													7030	100.6	0	0	0	0	7130.6

Remedy Component Number →		Input Summary														Remedy Component Subtotals						Total
		1	2	3	4	5	6															
		Column headings in Row 6 must match the name of "Input" tabs in this workbook for Columns C - P in this table to be populated ("0" in Row 4 means "Input" tab is turned Off and will not be grouped to a Remedy Component (Columns Q - V) or used in subsequent calculations)																				
		Cover System Install	Soil Source Removal	Input Template (3)	Input Template (4)	Input Template (5)	Input Template (6)	Input Template (7)	Input Template (8)	Input Template (9)	Input Template (10)	Input Template (11)	Input Template (12)	Input Template (13)	Input Template (14)	1	2	3	4	5	6	
Item																						
<u>Lab Services</u>																						
Off-site Laboratory Analysis - Other	sample	0	0													0	0	0	0	0	0	
Off-site Laboratory Analysis - Metals	sample	0	0													0	0	0	0	0	0	
Off-site Laboratory Analysis - Mercury	sample	0	0													0	0	0	0	0	0	
Off-site Laboratory Analysis - Inorganic Anions	sample	0	0													0	0	0	0	0	0	
Off-site Laboratory Analysis - Alkalinity	sample	0	0													0	0	0	0	0	0	
Off-site Laboratory Analysis - Perchlorate	sample	0	0													0	0	0	0	0	0	
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample	0	0													0	0	0	0	0	0	
Off-site Laboratory Analysis - Sulfate	sample	0	0													0	0	0	0	0	0	
Off-site Laboratory Analysis - PCBs	sample	0	0													0	0	0	0	0	0	
Off-site Laboratory Analysis - VOCs	sample	0	12													0	12	0	0	0	12	
Off-site Laboratory Analysis - SVOCs	sample	0	0													0	0	0	0	0	0	
<u>Resource Extraction for Electricity</u>																						
Coal extraction and processing	MWh	0.06771	0.000444													0.06771	0.000444	0	0	0	0.068154	
Natural gas extraction and processing	MWh	0.075258	0.00074													0.075258	0.00074	0	0	0	0.075998	
Nuclear fuel extraction and processing	MWh	0.043956	0.000148													0.043956	0.000148	0	0	0	0.044104	
Oil extraction and processing	MWh	0.001554	0.00037													0.001554	0.00037	0	0	0	0.001924	
Other fuel extraction and processing	MWh	0.000222	0													0.000222	0	0	0	0	0.000222	
<u>Electricity Transmission</u>																						
Transmission and distribution losses	MWh	0.222	0.0074													0.222	0.0074	0	0	0	0.2294	
<u>Other</u>																						
User-defined material #1	TBD	0	0													0	0	0	0	0	0	
User-defined material #2	TBD	0	0													0	0	0	0	0	0	
User-defined material #3	TBD	0	0													0	0	0	0	0	0	
User-defined material #4	TBD	0	0													0	0	0	0	0	0	
User-defined material #5	TBD	0	0													0	0	0	0	0	0	
User-defined material #6	TBD	0	0													0	0	0	0	0	0	
User-defined material #7	TBD	0	0													0	0	0	0	0	0	
User-defined material #8	TBD	0	0													0	0	0	0	0	0	
User-defined material #9	TBD	0	0													0	0	0	0	0	0	
User-defined material #10	TBD	0	0													0	0	0	0	0	0	
User-defined material #11	TBD	0	0													0	0	0	0	0	0	
User-defined material #12	TBD	0	0													0	0	0	0	0	0	
User-defined material #13	TBD	0	0													0	0	0	0	0	0	
User-defined material #14	TBD	0	0													0	0	0	0	0	0	
User-defined material #15	TBD	0	0													0	0	0	0	0	0	
User-defined material #16	TBD	0	0													0	0	0	0	0	0	
User-defined material #17	TBD	0	0													0	0	0	0	0	0	
User-defined material #18	TBD	0	0													0	0	0	0	0	0	
User-defined material #19	TBD	0	0													0	0	0	0	0	0	
User-defined material #20	TBD	0	0													0	0	0	0	0	0	
<u>User-defined Waste Destinations</u>																						
User-defined recycled/reused on-site #1	TBD	0	0													0	0	0	0	0	0	
User-defined recycled/reused on-site #2	TBD	0	0													0	0	0	0	0	0	
User-defined recycled/reused on-site #3	TBD	0	0													0	0	0	0	0	0	
User-defined recycled/reused off-site #1	TBD	0	0													0	0	0	0	0	0	
User-defined recycled/reused off-site #2	TBD	0	0													0	0	0	0	0	0	
User-defined recycled/reused off-site #3	TBD	0	0													0	0	0	0	0	0	
User-defined non-hazardous waste destination #1	TBD	0	0													0	0	0	0	0	0	
User-defined non-hazardous waste destination #2	TBD	0	0													0	0	0	0	0	0	
User-defined non-hazardous waste destination #3	TBD	0	0													0	0	0	0	0	0	
User-defined hazardous waste destination #1	TBD	0	0													0	0	0	0	0	0	
User-defined hazardous waste destination #2	TBD	0	0													0	0	0	0	0	0	
User-defined hazardous waste destination #3	TBD	0	0													0	0	0	0	0	0	

Input Worksheet for Cover System Install

Please specify which Remedy Component this Input worksheet is part of: (Select "Off" to exclude this Input worksheet from calculations and results)	Component 1	Cover System Installation
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General Scope

Example Items Eliminated through Screening Process

Installation of cover system across the site including asphalt and concrete pavement and soil. Reuse of approx. 766 CY of site soil under the cover system.

Other Notes and References

Personnel Transportation

[illegible]

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

On-Site Equipment Use and Transportation

[illegible]

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

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

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

Input Worksheet for Cover System Install

Remedy Component that this Input worksheet is part of:	Component 1	Cover System Installation
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On-Site Electricity Use

Equipment Type	HP	Load Factor (%)	Efficiency (%)	Electrical Rating (kW)	Hours Used	Energy Used (kWh)	Notes
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
Concrete Core Drill							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
Pair of CAMP stations						222	Charging of CAMP stations for 60 days
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
Estimated Total Electricity Usage Based on Above						222	
Renewable Electricity Generated On-Site*							
Total Electricity Usage Based on Personnel Transportation						0	
Total Grid Electricity Used						222	

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

On-Site Natural Gas Use

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

Landfill Gas Combusted On-Site for Energy Use

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

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

Materials Use and Transportation

Material Type*	Unit	Quantity	Tons	Is the Material Refined or Unrefined?**	Material Source: Virgin, Recycled, or Reused?**	Calculate Item Footprint?**	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation***	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Materials Transport (gallons)	Notes and Description of Materials
Gravel/Sand Mix, 65% Gravel	lb	5935833	2967.9165	Refined	Virgin	Yes	25			Yes	25	Truck (mpg)	Diesel	6		4.167	Crusher run base for impervious surfaces
Asphalt, paving-grade	lb	2220979	1110.4895	Refined	Virgin	Yes	25			Yes	25	Truck (mpg)	Diesel	6		4.167	
Gravel/sand/clay	lb	22491000	11245.5	Unrefined	Virgin	Yes	25			Yes	25	Truck (mpg)	Diesel	6		4.167	New Topsoil
Ready-mixed concrete, 20 MPa	ft3	353700	13263.75	Refined	Virgin	Yes	25			Yes	25	Truck (mpg)	Diesel	6		4.167	Sidewalks, curbs, pads
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														

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

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

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

Input Worksheet for Cover System Install

Spreadsheets for Environmental Footprint Analysis (SEFA) Version 3.0, November 2019
Coventry Commons (NYSDEC Site No. 859036) - Cover System Interim Remedial Measure Work Plan

Remedy Component that this Input worksheet is part of:	Component 1	Cover System Installation
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Waste Disposal and Transportation

Waste Destination*	Unit	Quantity	Tons	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation **	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Waste Transport (gallons)	Notes and Description of Waste
Recycled/reused on-site	tons	1149	1149	0	0.1	1	No	0.1	Truck single unit (gptm)	Diesel	0.032258065		3.7	Reuse of onsite soil under the cover system
Recycled/reused off-site	tons	1081	1081	50		1	No	50	Truck single unit (gptm)	Diesel	0.032258065		1743.5	Offsite recycling of asphalt pavement
Off-site non-hazardous waste landfill	tons	4800	4800	25		1	No	25	Truck (mpg)	Diesel	6		4.2	Offsite disposal of excess site soil
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											

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

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

Type of Water Used

Source of Water Used*	Unit	Quantity	Tons	Source Location/Aquifer (optional)	Quality of Water Used (optional)	Water Uses (optional)	Fate of Used Water (optional)
Public Water	gal x 1000	5	20.85			CAMP implementation, decon	
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				

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

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

Input Worksheet for Cover System Install

Remedy Component that this Input worksheet is part of:	Component 1	Cover System Installation
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Other Energy Use and Air Emissions

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

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

Other Voluntary Renewable Energy Use

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

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

Off-Site Laboratory Analysis

Parameter and Notes	Number of Samples	Comments
Off-site Laboratory Analysis - VOCs	0	
Off-site Laboratory Analysis - SVOCs	0	
Off-site Laboratory Analysis - Other	0	
Off-site Laboratory Analysis - Other	0	
Off-site Laboratory Analysis - PCBs	0	
Off-site Laboratory Analysis - Metals	0	
Off-site Laboratory Analysis - Mercury	0	
Off-site Laboratory Analysis - Other	0	
Off-site Laboratory Analysis - Other	0	
Off-site Laboratory Analysis - Other	0	
Totals	0	

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

Input Worksheet for Soil Source Removal

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

Component 2

Soil Source Removal

General Scope

Removal of soil source areas at TP-402 and TP-406, based on the results of the RI.

Example Items Eliminated through Screening Process

Other Notes and References

Personnel Transportation

Participant	Number of Roundtrips to Site	Roundtrip Distance to Site (miles)	Mode of Transportation*	Transport Fuel Type*	Total Distance Transported (miles)	Default Fuel Usage Rate**	Fuel Usage Rate Override**	Fuel Used for Personnel Transport**	Activity or Notes
Excavation Subcontractor Personnel 1	2	100	Heavy-Duty Truck	Diesel	200	7.55		26.5	Excavation subcontractor trip to site and back each day
Excavation Subcontractor Personnel 2	2	100	Heavy-Duty Truck	Diesel	200	7.55		26.5	Excavation subcontractor trip to site and back each day
C&S Staff	2	150	Light-Duty/Passenger Truck	Gasoline	300	18.9		15.9	C&S trip to site, lab, and back each day

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

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

On-Site Equipment Use and Transportation

Equipment Type*	HP*	Load Factor (%)*	Equipment Fuel Type**	Equipment Fuel Usage Rate	Equipment Hours Operated	Fuel Used for On-site Equipment	Equipment weight (tons)	Number of Equipment Roundtrips to Site	Roundtrip Distance to Site (miles)	Total Distance Transported (miles)	Mode of Transportation	Transport Fuel Type***	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Equipment Transport (gallons)	Activity or Notes
Excavator/hoe - small (75 HP)	75	75%	Diesel less than 75 hp	3.440366972	16	55.04587156	10	1	100	100	Combination Truck (gptm)	Diesel	0.015337423		15.3	Mini excavator for excavation and backfilling.
Skid-steer - small (60 HP)	60	75%	Diesel less than 75 hp	2.752293578	16	44.03669725	5	1	100	100	Combination Truck (gptm)	Diesel	0.015337423		7.7	Skid steer for stockpiling of contaminated soil and backfilling of excavations.

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

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

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

Input Worksheet for Soil Source Removal

Remedy Component that this Input worksheet is part of:	Component 2	Soil Source Removal
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On-Site Electricity Use

Equipment Type	HP	Load Factor (%)	Efficiency (%)	Electrical Rating (kW)	Hours Used	Energy Used (kWh)	Notes
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
<Equip. with HP, Efficiency, and Hours>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
Pair of CAMP Stations						7.4	Charging of CAMP stations for 2 days
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
Estimated Total Electricity Usage Based on Above						7.4	
Renewable Electricity Generated On-Site*							
Total Electricity Usage Based on Personnel Transportation						0	
Total Grid Electricity Used						7.4	

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

On-Site Natural Gas Use

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

Landfill Gas Combusted On-Site for Energy Use

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

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

Materials Use and Transportation

Material Type*	Unit	Quantity	Tons	Is the Material Refined or Unrefined?**	Material Source: Virgin, Recycled, or Reused?**	Calculate Item Footprint?**	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation**	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Materials Transport (gallons)	Notes and Description of Materials
HDPE	lb	100	0.05	Refined	Virgin	Yes	500				500						Polyethylene sheeting for soil stockpiles - do not include in transport (with contractor)
Gravel/Sand Mix, 65% Gravel	lb	127500	63.75	Refined	Virgin	Yes	25			Yes	25	Truck (mpg)	Diesel	6		4.167	Crusher run for backfill
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														

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

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

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

Input Worksheet for Soil Source Removal

Spreadsheets for Environmental Footprint Analysis (SEFA) Version 3.0, November 2019
Coventry Commons (NYSDEC Site No. 859036) - Cover System Interim Remedial Measure Work Plan

Remedy Component that this Input worksheet is part of:

Component 2	Soil Source Removal
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Waste Disposal and Transportation

Waste Destination*	Unit	Quantity	Tons	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation **	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Waste Transport (gallons)	Notes and Description of Waste
Off-site non-hazardous waste landfill	tons	100.5	100.5	25		5	Yes	250	Truck single unit (gptm)	Diesel	0.032258065		81.0	Disposal of excavated contaminated soil
Off-site non-hazardous waste landfill	tons	0.1	0.1	25		1	No	25	Truck single unit (gptm)	Diesel	0.032258065		0.1	Disposal of general refuse (PPE, soil screening bags, sampling equipment, etc.)
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											

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

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

Type of Water Used

Source of Water Used*	Unit	Quantity	Tons	Source Location/Aquifer (optional)	Quality of Water Used (optional)	Water Uses (optional)	Fate of Used Water (optional)
Public Water	gal x 1000	0.5	2.085			CAMP implementation, decontamination	
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				

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

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

Input Worksheet for Soil Source Removal

Remedy Component that this Input worksheet is part of:	Component 2	Soil Source Removal
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Other Energy Use and Air Emissions

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

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

Other Voluntary Renewable Energy Use

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

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

Off-Site Laboratory Analysis

Parameter and Notes	Number of Samples	Comments
Off-site Laboratory Analysis - VOCs	12	
Off-site Laboratory Analysis - SVOCs		
Off-site Laboratory Analysis - Other		
Off-site Laboratory Analysis - Other		
Off-site Laboratory Analysis - PCBs		
Off-site Laboratory Analysis - Metals		
Off-site Laboratory Analysis - Mercury		
Off-site Laboratory Analysis - Other		
Off-site Laboratory Analysis - Other		
Off-site Laboratory Analysis - Other		
Totals	12	

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

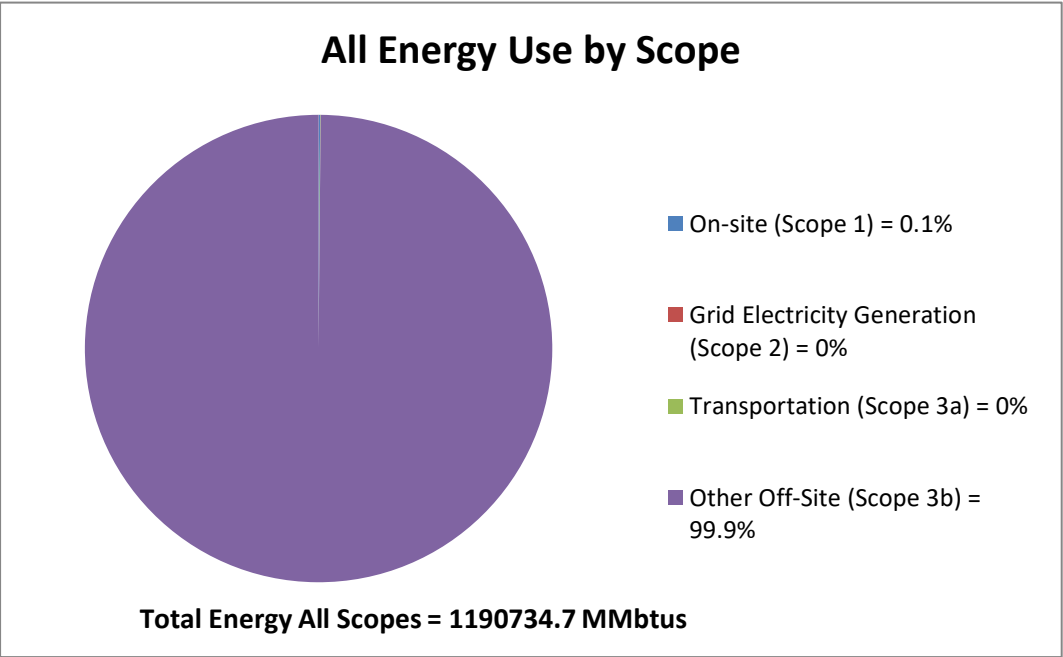
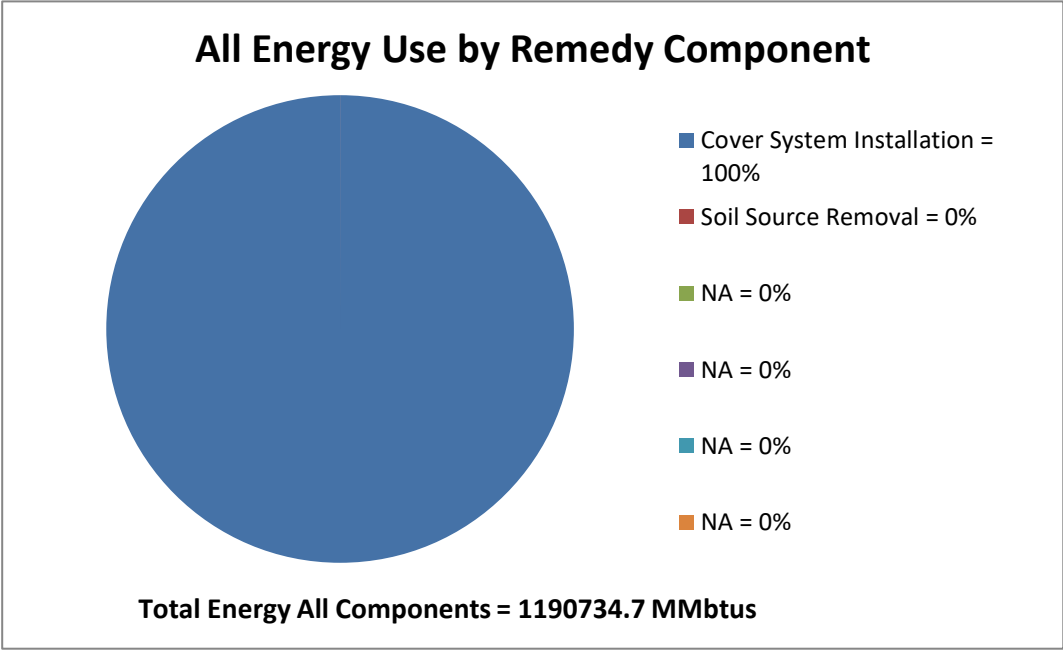
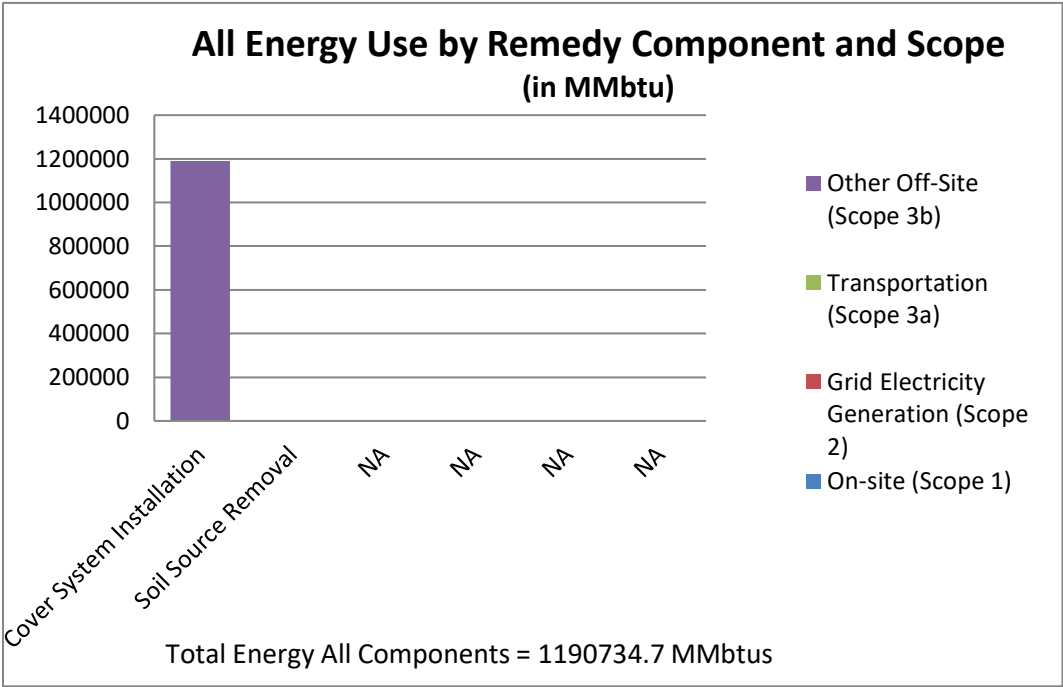
Environmental Footprint Summary

Core Element	Metric		Unit of Measure	Footprint						
				Cover System Installation	Soil Source Removal	NA	NA	NA	NA	Total
Materials & Waste	M&W-1	Refined materials used on-site	Tons	17,342.2	63.8	0.0	0.0	0.0	0.0	17,406.0
	M&W-2	% of refined materials from recycled or reused material	%	0.0%	0.0%					0.0%
	M&W-3	Unrefined materials used on-site	Tons	11,245.500	0.000	0.000	0.000	0.000	0.000	11,245.5
	M&W-4	% of unrefined materials from recycled or reused material	%	0.0%						0.0%
	M&W-5	On-site hazardous waste disposed of off-site	Tons	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	M&W-6	On-site non-hazardous waste disposed of off-site	Tons	4,800.0	100.6	0.0	0.0	0.0	0.0	4,900.6
	M&W-7	Recycled or reused waste	Tons	2,230.0	0.0	0.0	0.0	0.0	0.0	2,230.0
	M&W-8	% of total potential waste recycled or reused	%	31.7%	0.0%					31.3%
Water (used on-site)	W-1	Public water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-2	Groundwater use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-3	Surface water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-4	Reclaimed water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-5	Storm water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-6	User-defined water resource #1	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-7	User-defined water resource #2	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-8	Wastewater generated	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy	E-1	Total energy used (on-site and off-site)	MMBtu	1,190,668.0	66.7	0.0	0.0	0.0	0.0	1,190,734.7
	E-2	Energy voluntarily derived from renewable resources								
	E-2A	On-site renewable energy generation or use + on-site biodiesel use + biodiesel and other renewable resource use for transportation	MMBtu	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-2B	Voluntary purchase of renewable electricity	MWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-3	Voluntary purchase of RECs	MWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-4	On-site grid electricity use	MWh	0.222	0.007	0.000	0.000	0.000	0.000	0.2
Air	A-1	On-site NOx, SOx, and PM emissions	Pounds	1,051.2	17.0	0.0	0.0	0.0	0.0	1,068.2
	A-2	On-site HAP emissions	Pounds	0.4	0.0	0.0	0.0	0.0	0.0	0.4
	A-3	Total NOx, SOx, and PM emissions	Pounds	416,494.4	120.3	0.0	0.0	0.0	0.0	416,614.7
	A-3A	Total NOx emissions	Pounds	103,526.6	62.9	0.0	0.0	0.0	0.0	103,589.5
	A-3B	Total SOx emissions	Pounds	270,498.8	13.9	0.0	0.0	0.0	0.0	270,512.6
	A-3C	Total PM emissions	Pounds	42,469.0	43.5	0.0	0.0	0.0	0.0	42,512.5
	A-4	Total HAP emissions	Pounds	34,550.5	0.9	0.0	0.0	0.0	0.0	34,551.4
	A-5	Total greenhouse gas emissions	Tons CO2e*	13,233.4	5.1	0.0	0.0	0.0	0.0	13,238.5
Land & Ecosystems		Qualitative Description								

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

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

Notes:



Total Energy		MMbtus								
		Cover Syst	Soil Source	NA	NA	NA	NA	Total		
On-site (Scope 1)		1,264.0	13.8	0.0	0.0	0.0	0.0	1,277.8		
Generation (Scope 2)		1.5	0.1	0.0	0.0	0.0	0.0	1.6	Electricity	
Transportation (Scope 3a)		404.8	24.4	0.0	0.0	0.0	0.0	429.2	Tran	
ier Off-Site (Scope 3b)	#####		28.5	0.0	0.0	0.0	0.0	#####	Oth	
Total	#####		66.7	0.0	0.0	0.0	0.0	#####		

Cover System Installation = 100%

Soil Source Removal = 0%

NA = 0%

NA = 0%

NA = 0%

NA = 0%

On-site (Scope 1) = 0.1%

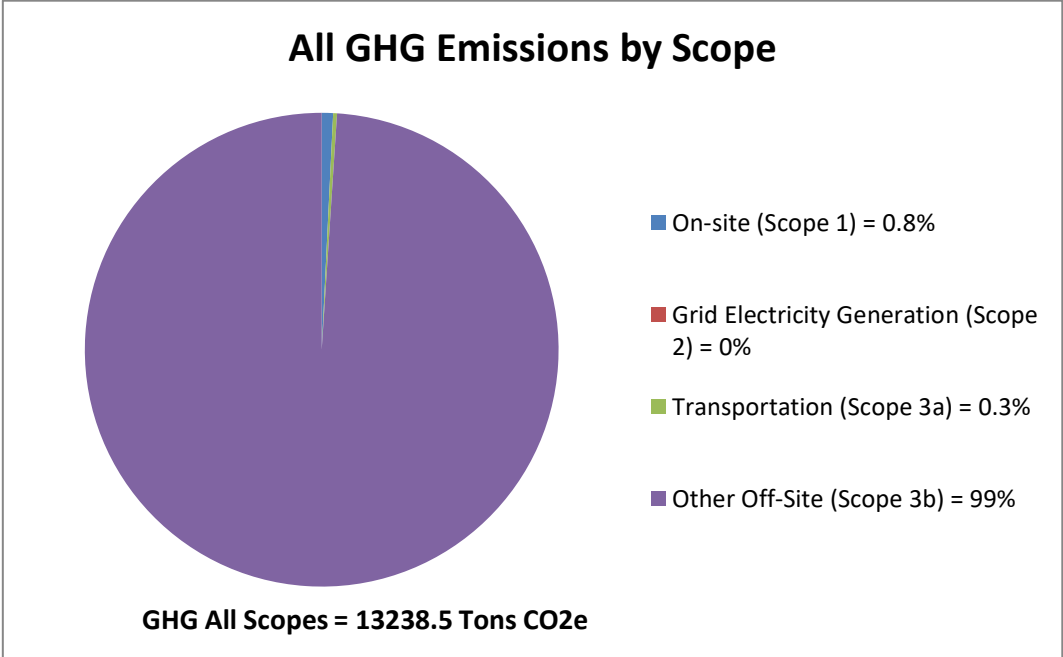
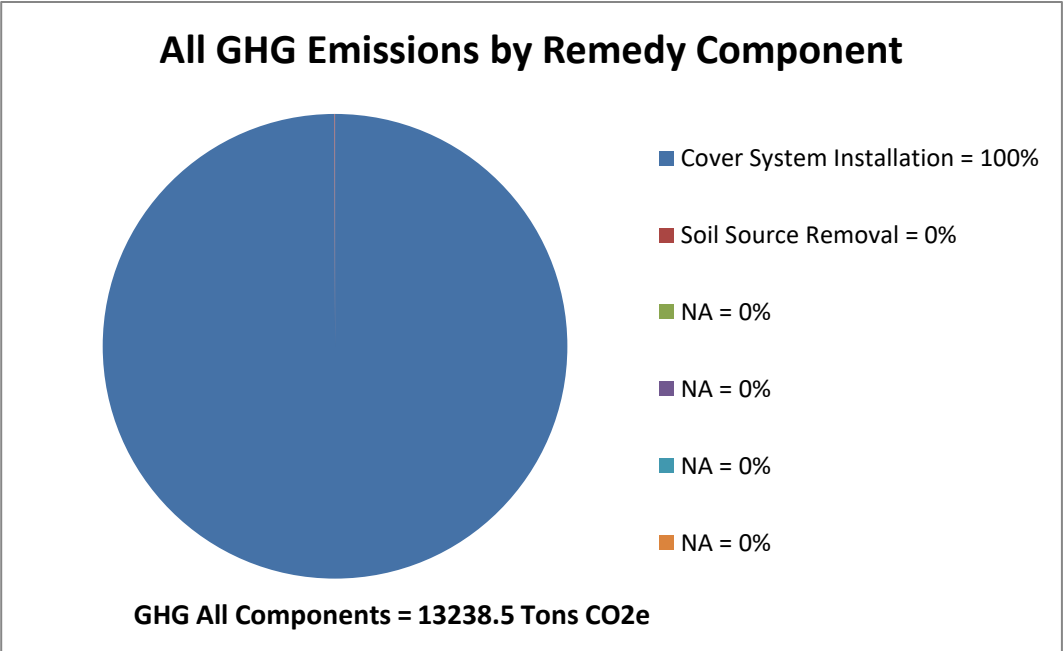
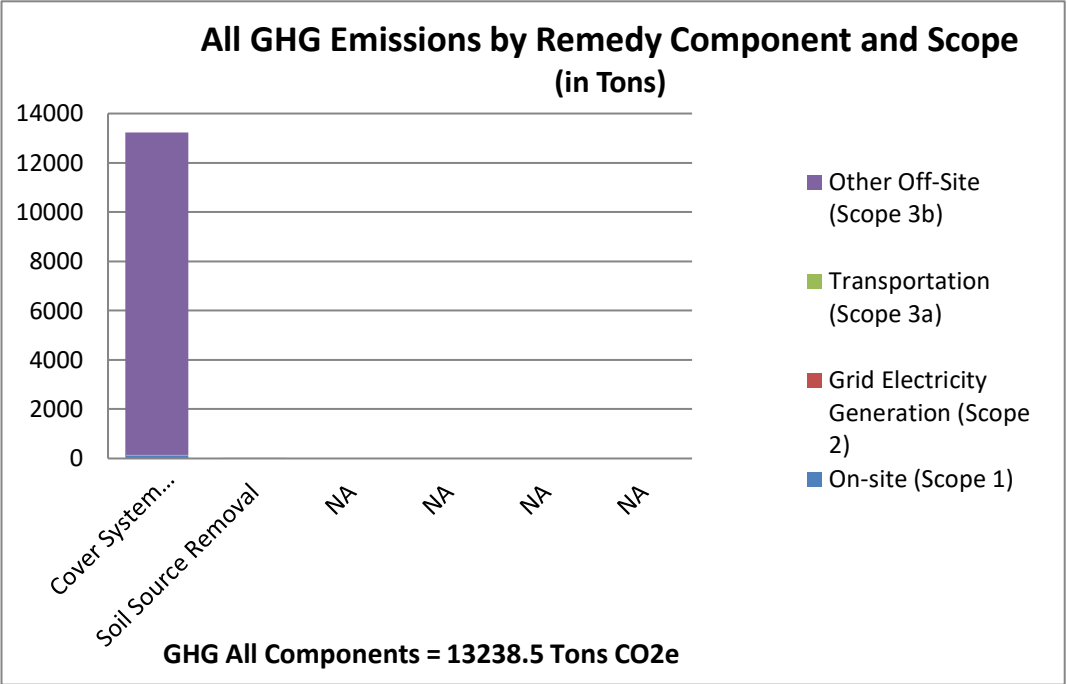
Grid Electricity Generation (Scope 2) = 0%

Transportation (Scope 3a) = 0%

Other Off-Site (Scope 3b) = 99.9%

Total Energy All Components = 1190734.7 MMbtus

Total Energy All Scopes = 1190734.7 MMbtus



GHG Tons CO2e	Cover Syst	Soil Source	NA	NA	NA	NA	Total	
On-site (Scope 1)	101.0	1.1	0.0	0.0	0.0	0.0	102.1	
Generation (Scope 2)	0.1	0.0	0.0	0.0	0.0	0.0	0.1	Electricity
Transportation (Scope 3a)	32.7	2.0	0.0	0.0	0.0	0.0	34.7	Tran
er Off-Site (Scope 3b)	13,099.5	2.0	0.0	0.0	0.0	0.0	13,101.5	Oth
Total	13,233.4	5.1	0.0	0.0	0.0	0.0	13,238.5	

Cover System Installation = 100%

Soil Source Removal = 0%

NA = 0%

NA = 0%

NA = 0%

NA = 0%

GHG All Components = 13238.5 Tons CO2e

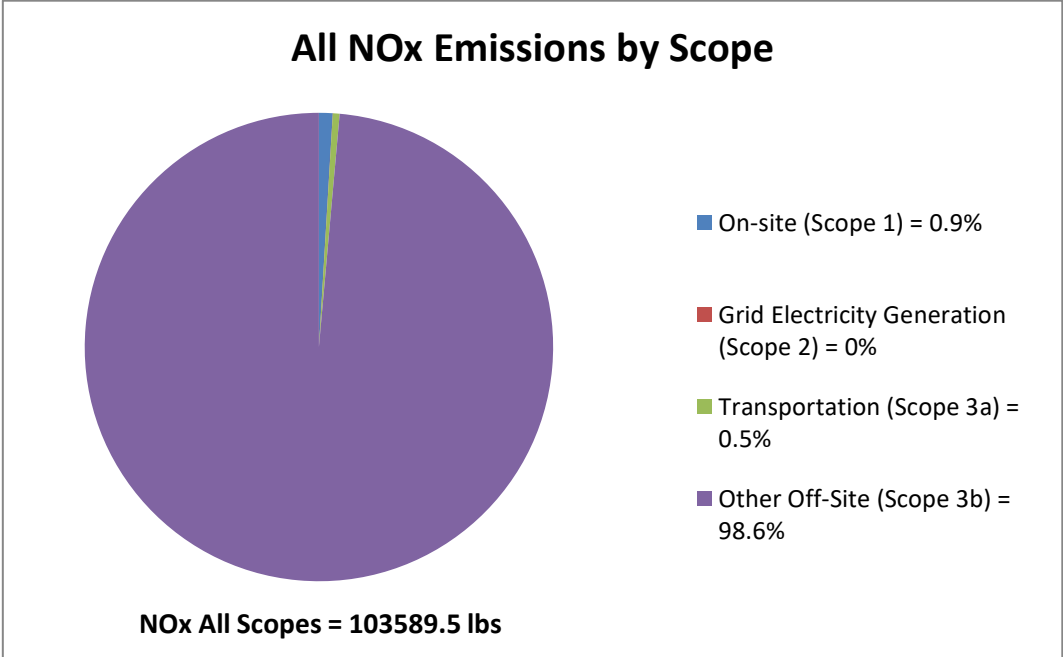
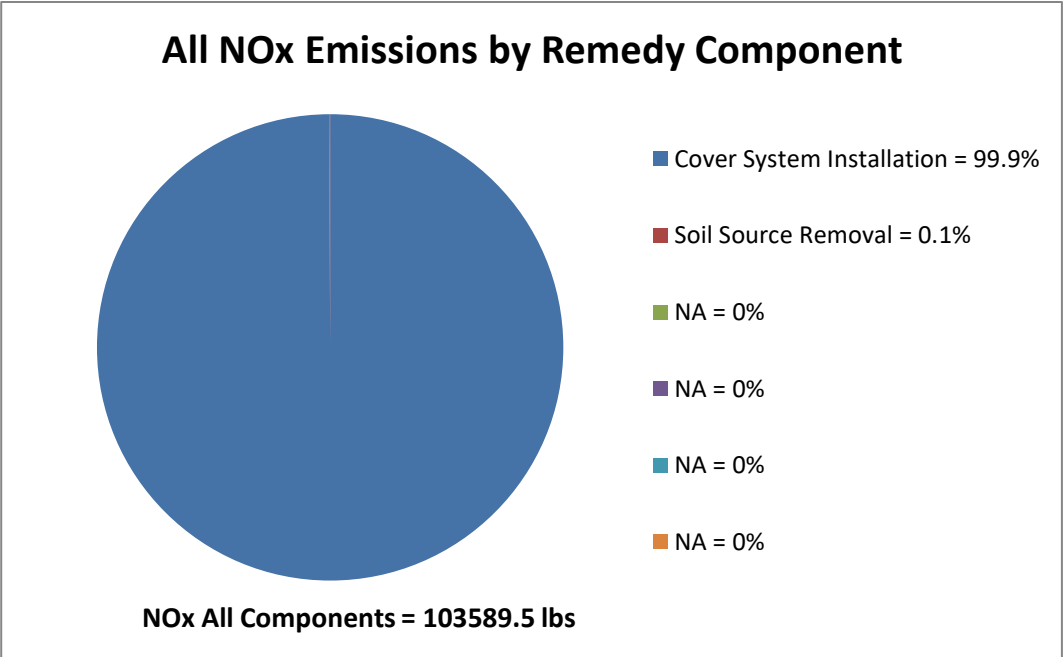
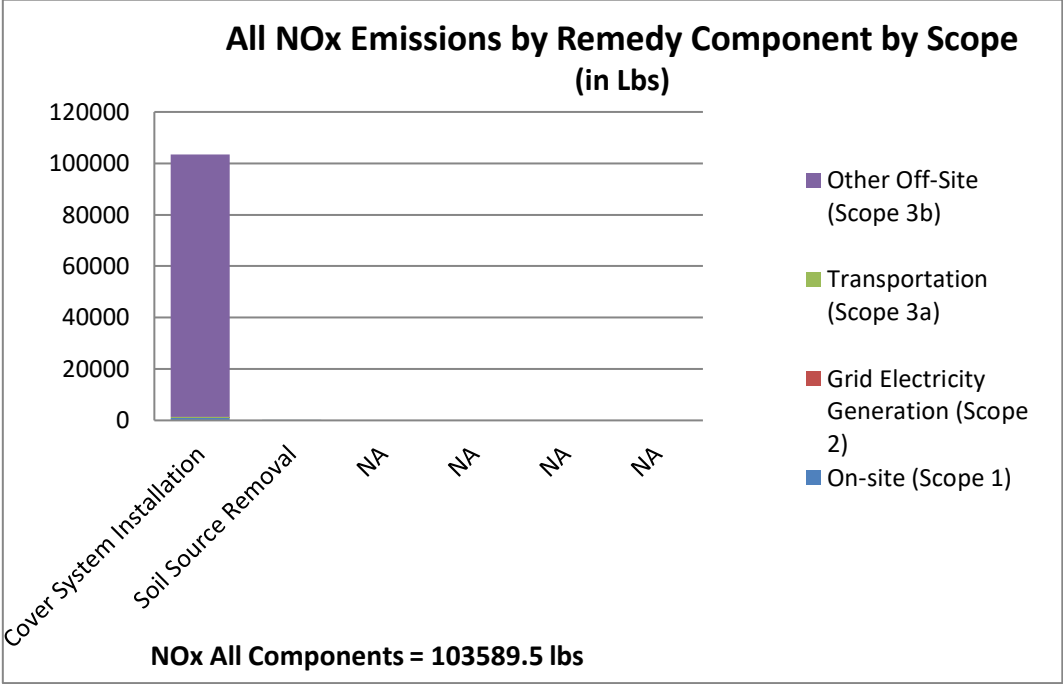
GHG All Scopes = 13238.5 Tons CO2e

On-site (Scope 1) = 0.8%

Grid Electricity Generation (Scope 2) = 0%

Transportation (Scope 3a) = 0.3%

Other Off-Site (Scope 3b) = 99%

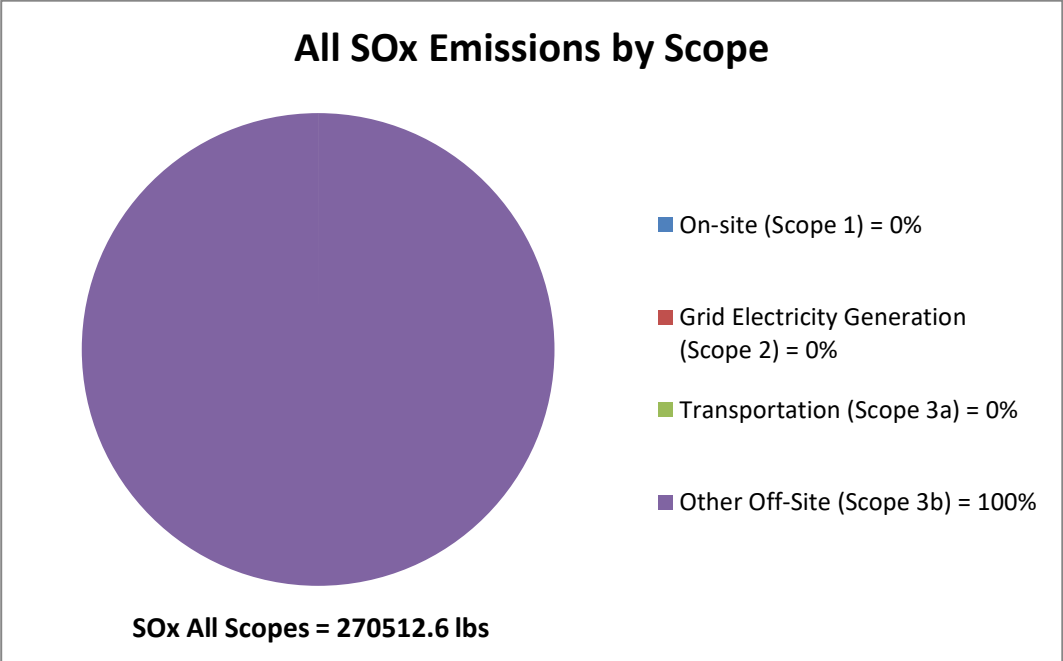
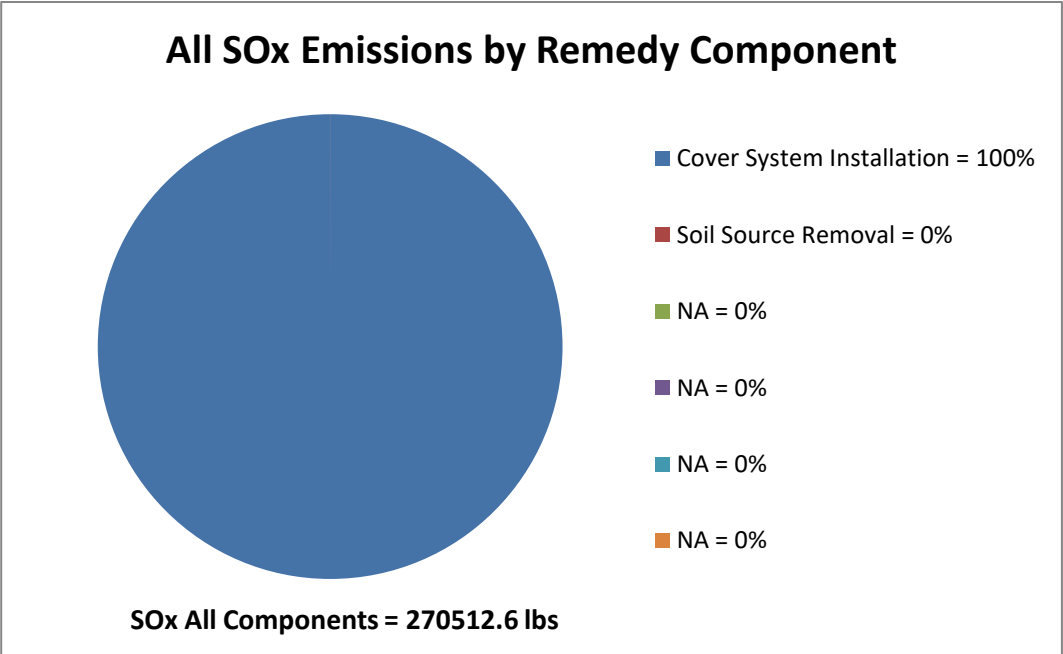
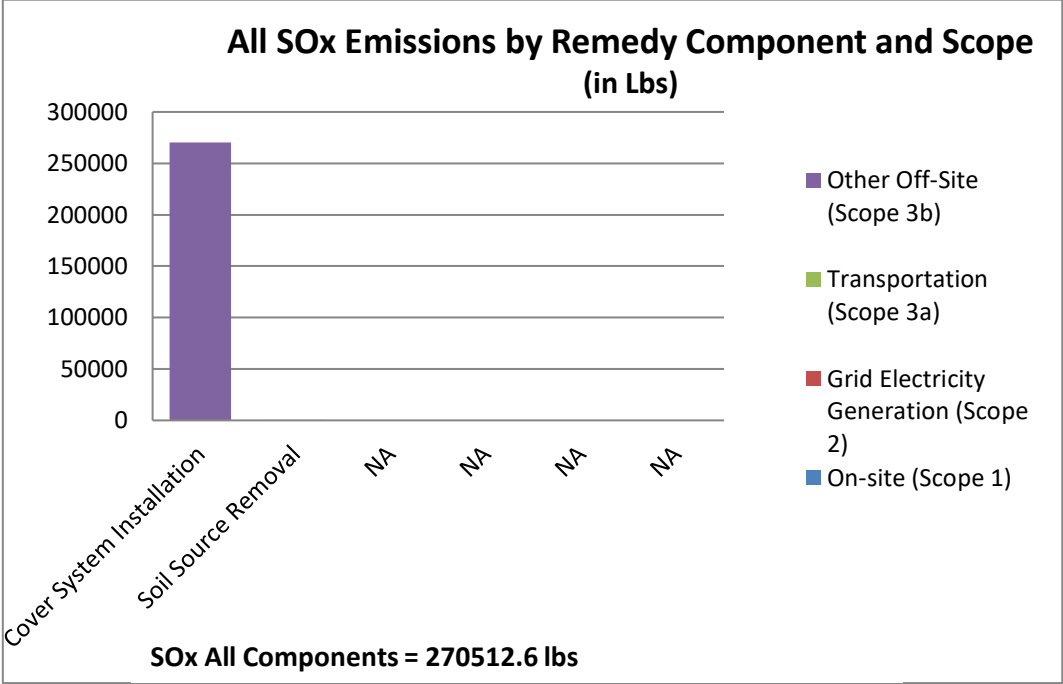


NOx lbs	Cover Syst	Soil Source	NA	NA	NA	NA	Total	
On-site (Scope 1)	963.7	15.5	0.0	0.0	0.0	0.0	979.2	
Generation (Scope 2)	0.5	0.0	0.0	0.0	0.0	0.0	0.5	Electricity
Transportation (Scope 3a)	458.1	28.0	0.0	0.0	0.0	0.0	486.0	Tran
ier Off-Site (Scope 3b)	102,104.4	19.4	0.0	0.0	0.0	0.0	102,123.7	Oth
Total	103,526.6	62.9	0.0	0.0	0.0	0.0	103,589.5	

Cover System Installation = 99.9%
Soil Source Removal = 0.1%
NA = 0%
NA = 0%
NA = 0%
NA = 0%

On-site (Scope 1) = 0.9%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 0.5%
Other Off-Site (Scope 3b) = 98.6%

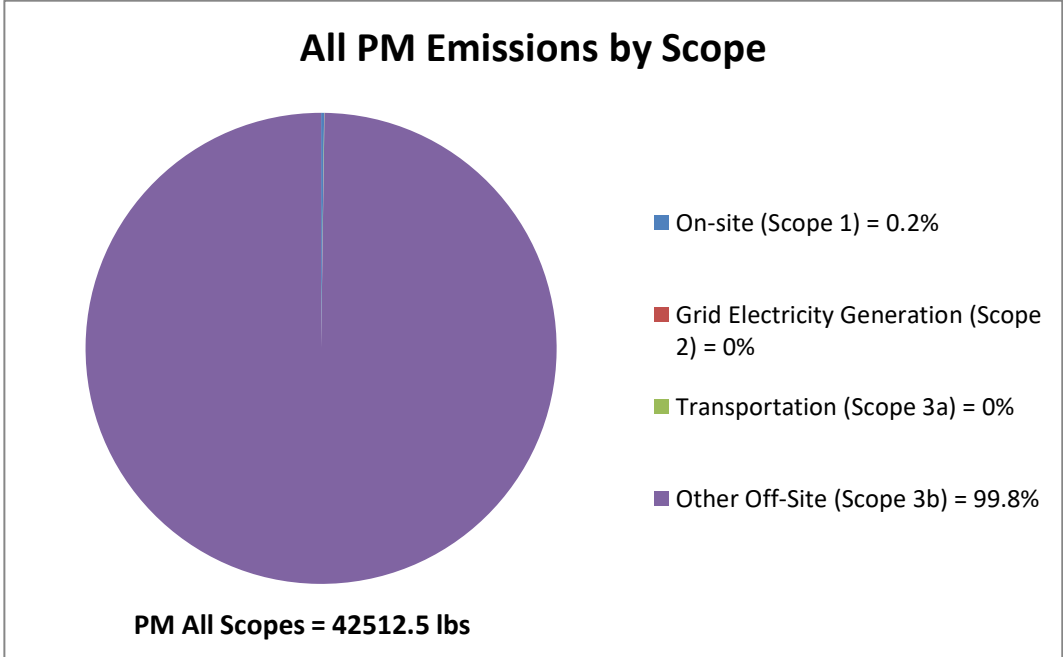
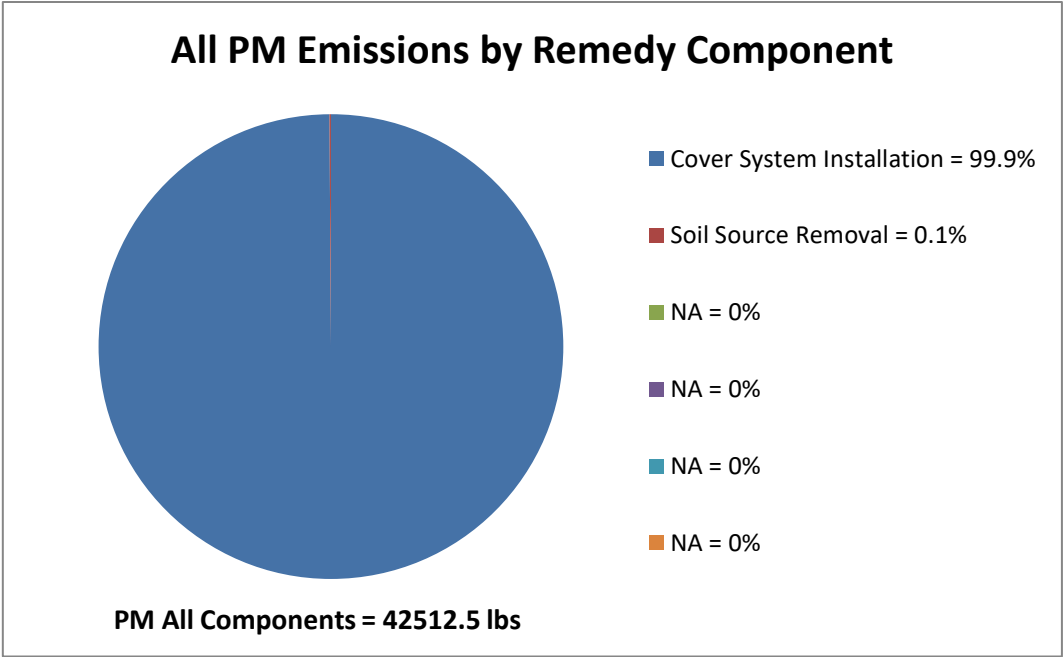
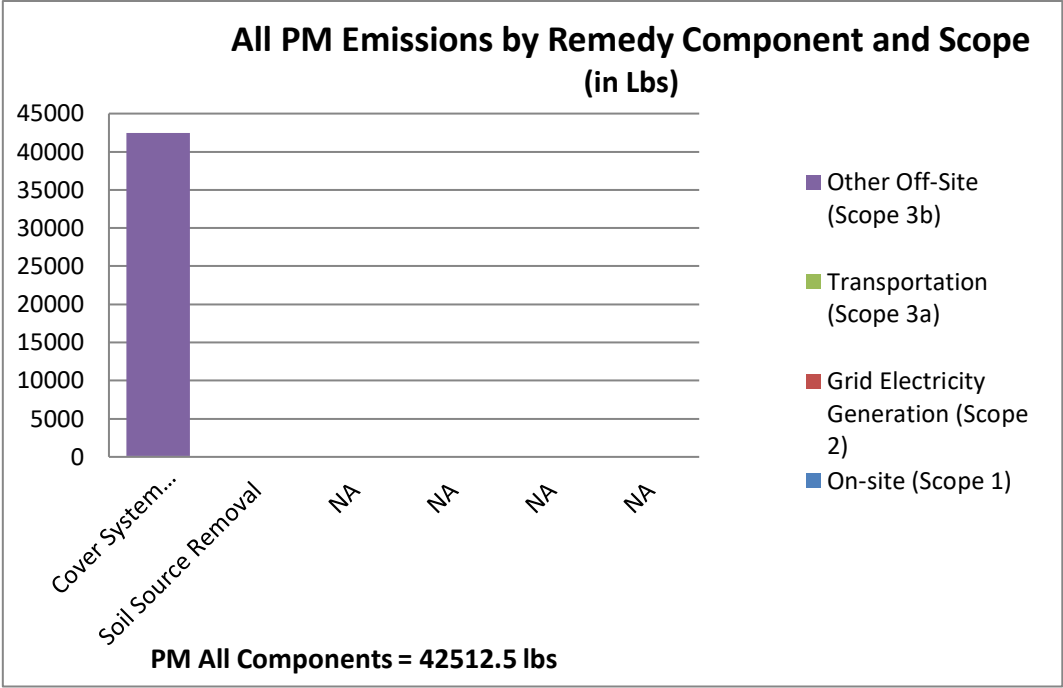
NOx All Components = 103589.5 lbs
NOx All Scopes = 103589.5 lbs



SOx lbs	Cover Syst	Soil Source	NA	NA	NA	NA	Total	
On-site (Scope 1)	1.2	0.0	0.0	0.0	0.0	0.0	1.2	
Generation (Scope 2)	1.0	0.0	0.0	0.0	0.0	0.0	1.0	Electricity
Transportation (Scope 3a)	14.3	0.9	0.0	0.0	0.0	0.0	15.2	Tran
ier Off-Site (Scope 3b)	270,482.2	13.0	0.0	0.0	0.0	0.0	270,495.2	Oth
Total	270,498.8	13.9	0.0	0.0	0.0	0.0	270,512.6	

Cover System Installation = 100%
 Soil Source Removal = 0%
 NA = 0%
 NA = 0%
 NA = 0%
 NA = 0%
 SOx All Components = 270512.6 lbs
 SOx All Scopes = 270512.6 lbs

On-site (Scope 1) = 0%
 Grid Electricity Generation (Scope 2) = 0%
 Transportation (Scope 3a) = 0%
 Other Off-Site (Scope 3b) = 100%

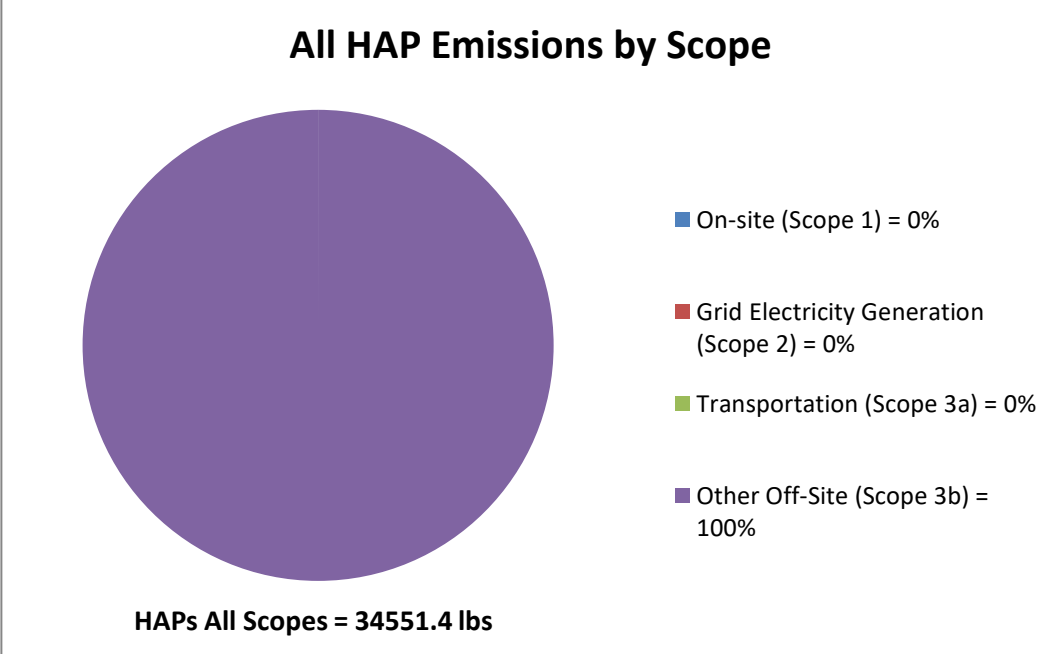
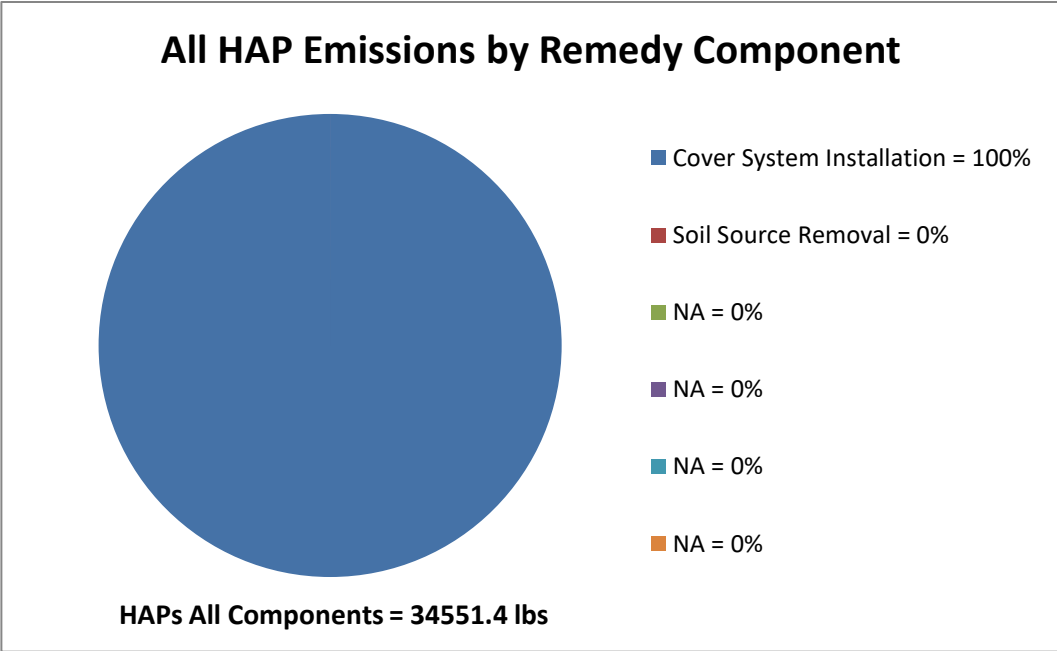
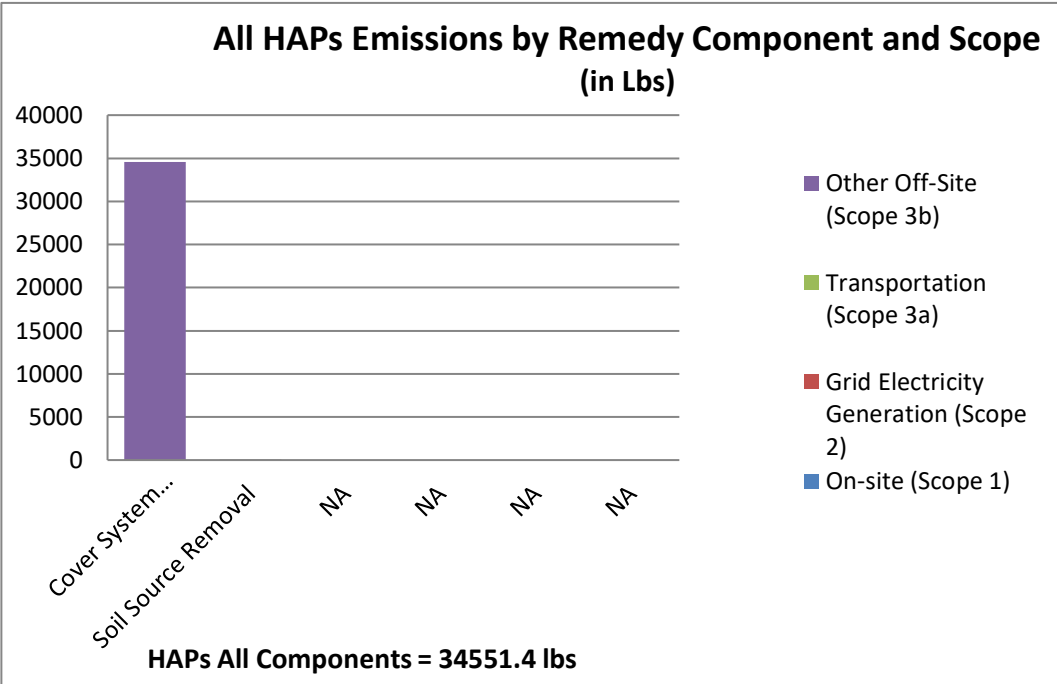


PM lbs	Cover Syst	Soil Source	NA	NA	NA	NA	Total	
On-site (Scope 1)	86.3	1.4	0.0	0.0	0.0	0.0	87.8	
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Electricity
Transportation (Scope 3a)	9.9	0.6	0.0	0.0	0.0	0.0	10.5	Tran
ier Off-Site (Scope 3b)	42,372.8	41.5	0.0	0.0	0.0	0.0	42,414.3	Oth
Total	42,469.0	43.5	0.0	0.0	0.0	0.0	42,512.5	

Cover System Installation = 99.9%
 Soil Source Removal = 0.1%
 NA = 0%
 NA = 0%
 NA = 0%
 NA = 0%

On-site (Scope 1) = 0.2%
 Grid Electricity Generation (Scope 2) = 0%
 Transportation (Scope 3a) = 0%
 Other Off-Site (Scope 3b) = 99.8%

PM All Components = 42512.5 lbs
 PM All Scopes = 42512.5 lbs



HAPs							
lbs							
	Cover Syst	Soil Source	NA	NA	NA	NA	Total
On-site (Scope 1)	0.4	0.0	0.0	0.0	0.0	0.0	0.4
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transportation (Scope 3a)	2.1	0.1	0.0	0.0	0.0	0.0	2.2
er Off-Site (Scope 3b)	34,548.0	0.8	0.0	0.0	0.0	0.0	34,548.7
Total	34,550.5	0.9	0.0	0.0	0.0	0.0	34,551.4

Cover System Installation = 100%

Soil Source Removal = 0%

NA = 0%

NA = 0%

NA = 0%

NA = 0%

HAPs All Components = 34551.4 lbs

HAPs All Scopes = 34551.4 lbs

On-site (Scope 1) = 0%

Grid Electricity Generation (Scope 2) = 0%

Transportation (Scope 3a) = 0%

Other Off-Site (Scope 3b) = 100%

Cover System Installation - Energy & Air Compiled Results

Category	Total Energy	GHG	NOx	SOx	PM	NOx + SOx + PM	HAPs
	MMbtus	lbs CO2e	lbs	lbs	lbs	lbs	lbs
On-site (Scope 1)	1,264.0	202,093	963.7	1.2	86.3	1,051.2	0.4
Grid Electricity Generation (Scope 2)	1.538	250	0.5	1.0	0.0	1.5	0.0
Transportation (Scope 3a)	404.8	65,440	458.1	14.3	9.9	482.3	2.1
Other Off-Site (Scope 3b)	1,188,997.6	26,199,100	102,104.4	270,482.2	42,372.8	414,959.4	34,548.0
Remedy Totals	1,190,668.0	26,466,882	103,526.6	270,498.8	42,469.0	416,494.4	34,550.5

Values that are forwarded to the "Summary" tab are indicated in orange.

Voluntary Renewable Energy Use	Unit	Quantity
On-site renewable energy generation or use	MMBtu	0
On-site biodiesel use	MMBtu	0
Biodiesel and other renewable resource use for transportation	MMBtu	0
On-site renewable energy generation or use + on-site biodiesel use + biodiesel and other renewable resource use for transportation	MMBtu	0
Voluntary purchase of renewable electricity	MWh	0
Voluntary purchase of RECs	MWh	0

(This value is the sum of the three rows above)

This worksheet is not intended for user input. Values on this worksheet are obtained from the following file:
 SEFA_calculations_(121718).xlsx

Soil Source Removal - Energy & Air Compiled Results

Category	Total Energy	GHG	NOx	SOx	PM	NOx + SOx + PM	HAPs
	MMbtus	lbs CO2e	lbs	lbs	lbs	lbs	lbs
On-site (Scope 1)	14	2,201	16	0	1	17	0
Grid Electricity Generation (Scope 2)	0	3	0	0	0	0	0
Transportation (Scope 3a)	24	3,943	28	1	1	29	0
Other Off-Site (Scope 3b)	28	3,957	19	13	41	74	1
Remedy Totals	67	10,104	63	14	44	120	1

Values that are forwarded to the "Summary" tab are indicated in orange.

Voluntary Renewable Energy Use	Unit	Quantity
On-site renewable energy generation or use	MMBtu	0
On-site biodiesel use	MMBtu	0
Biodiesel and other renewable resource use for transportation	MMBtu	0
On-site renewable energy generation or use + on-site biodiesel use + biodiesel and other renewable resource use for transportation	MMBtu	0
Voluntary purchase of renewable electricity	MWh	0
Voluntary purchase of RECs	MWh	0

(This value is the sum of the three rows above)

This worksheet is not intended for user input. Values on this worksheet are obtained from the following file:
SEFA_calculations_(121718).xlsx

Cover System Installation - On-Site Footprint (Scope 1)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
On-Site														
On-site Renewable Energy														
Renewable electricity generated on-site	MWh	0	3.413	0										
Landfill gas combusted on-site for energy use	ccf CH4	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined on-site renewable energy use #1	gal	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
On-site Conventional Energy														
On-site grid electricity	MWh	0.222	3.413	0.757686										
On-site diesel use - Other	Gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
On-site diesel use <75 hp	Gal	825.68807	0.139	114.77064	22.21	18338.532	0.1565	129.22018	0.000145	0.1197248	0.0145	11.972477	0.00004	0.0330275
On-site diesel use 75<hp<750	Gal	8262.3626	0.139	1148.4684	22.24	183754.95	0.101	834.49863	0.00013	1.0741071	0.009	74.361264	0.00004	0.3304945
On-site diesel use >750 hp	Gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
On-site gasoline use - Other	Gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	Gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	Gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site compressed natural gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed natural gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site liquified petroleum gas use - Other	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Other forms of on-site conventional energy use #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Conventional Energy Subtotals				1,264		202,093		964		1		86		0
Notes:														
Other On-site Emissions														
On-site HAP process emissions	lbs	0											1	0
On-site GHG emissions	lbs CO2e	0			1	0								
On-site carbon storage	lbs CO2e	0			1	0								
GHG avoided by flaring on-site landfill methane	Lbs	0			-262	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Other on-site NOx emissions or reductions	lbs	0					1	0						
Other on-site SOx emissions or reductions	lbs	0							1	0				
Other on-site PM emissions or reductions	lbs	0									1	0		
User-defined recycled/reused on-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
On-site Totals				1,264.00		202,093		964		1		86		0

Cover System Installation - Electricity Generation Footprint (Scope 2)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Electricity Generation														
Grid electricity	MWh	0.222	6.929	1.538238	1124.3	249.5946	2.2421	0.4977462	4.6078874	1.022951	0.057518	0.012769	0.2102371	0.0466726
Voluntary purchase of renewable electricity	MWh	0												
Voluntary purchase of RECs	MWh	0												
Notes:														

Cover System Installation - Transportation Footprint (Scope 3a)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Conventional Energy														
Transportation diesel use	gal	2629.168	0.139	365.45435	22.5	59156.28	0.17	446.95856	0.0054	14.197507	0.0034	8.9391712	0.0000052	0.0136717
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	0	0.139	0	22.545	0	0.0585	0	0.0002	0	0.007	0	0.002605	0
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	0	0.124	0	19.77	0	0.027	0	0.00036	0	0.003	0	0.0067	0
Transportation gasoline use - passenger truck	gal	317.5	0.124	39.37	19.79	6283.325	0.035	11.1125	0.00036	0.1143	0.003	0.9525	0.00661	2.098675
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
User-defined conventional energy transportation #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined conventional energy transportation #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Conventional Energy Subtotals				405		65,440		458		14		10		2
Notes:														
Renewable Energy														
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined renewable energy transportation #1	TBD	0	Biodiesel		0	0	0	0	0	0	0	0	Ref.	
User-defined renewable energy transportation #2	TBD	0	mpg or pmpg		0	0	0	0	0	0	0	0	0	0
Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
Transportation Totals				405		65440		458		14		10		2

Cover System Installation - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
Construction Materials														
Aluminum, Rolled Sheet	lb	0	0.0633	0	9.15	0	0.0148	0	0.0283	0	0.0088	0	0.00102	0
Asphalt, mastic	lb	0	0.0412	0	0.85	0	0.00271	0	0.00798	0	0.000766	0	0.00107	0
Asphalt, paving-grade	lb	2220979	0.5	1110489.5	8.58	19056000	0.0299	66407.272	0.0969	215212.87	0.0091	20210.909	0.0133	29539.021
Ethanol, Corn, 95%	lb	0	0.0318	0	-0.0199	0	0.00425	0	0.00303	0	0.000469	0	0.0000846	0
Ethanol, Corn, 99.7%	lb	0	0.0324	0	0.0591	0	0.00431	0	0.0031	0	0.000472	0	0.000087	0
Ethanol, Petroleum, 99.7%	lb	0	0.0205	0	1.25	0	0.00199	0	0.00214	0	0.000277	0	0.0000589	0
Gravel/Sand Mix, 65% Gravel	lb	5935833	0.0000248	147.20866	0.0024	14245.999	0.000018	106.84499	4.52E-06	26.829965	2.61E-06	15.492524	3.08E-07	1.8282366
Gravel/sand/clay	lb	22491000	0.000028	629.748	0.00335	75344.85	0.0000165	371.1015	0.000015	337.365	0.000002	44.982	2.05E-10	0.0046107
HDPE	lb	0	0.0332	0	1.94	0	0.00325	0	0.00409	0	0.000439	0	0.0000641	0
Photovoltaic system (installed)	W	0	0.0336	0	4.47	0	0.015	0	0.032	0	0.00063	0	0.0000029	0
PVC	lb	0	0.0262	0	2.02	0	0.004	0	0.00274	0	0.000372	0	0.000375	0
Portland cement, US average	lb	0	0.0139	0	1.34	0	0.00654	0	0.0104	0	0.00378	0	0.00097	0
Ready-mixed concrete, 20 MPa	ft3	353700	0.217	76752.9	19.5	6897150	0.0975	34485.75	0.154	54469.8	0.057	20160.9	0.0141	4987.17
Round Gravel	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Sand	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Stainless Steel	lb	0	0.0116	0	3.4	0	0.0075	0	0.012	0	0.0044	0	0.000144	0
Steel	lb	0	0.0044	0	1.1	0	0.0014	0	0.0017	0	0.00056	0	0.000067	0
Other refined construction materials	lb	0	0.01885	0	2.115	0	0.0040375	0	0.0051325	0	0.0014428	0	0.0001625	0
Other unrefined construction materials	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
Notes:														

Cover System Installation - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<i>Treatment Materials & Chemicals</i>														
Cheese Whey	lbs	0	0.0025	0	0.031	0	0.000062	0	0.000033	0	0.000002	0	NP	
Emulsified vegetable oil	lbs	0	0.0077	0	3.44	0	0.0066	0	0.0019	0	0.000033	0	NP	
Granular activated carbon, primary	lbs	0	0.0356	0	4.82	0	0.0793	0	0.128	0	0.000987	0	0.000657	0
Granular activated carbon, regenerated	lbs	0	0.00873	0	1.7	0	0.00733	0	0.0129	0	0.000886	0	0.000671	0
Hydrogen Peroxide, 50% in H2O	lbs	0	0.00979	0	1.19	0	0.00142	0	0.0024	0	0.000308	0	0.0000629	0
Iron (II) Sulfate	lbs	0	0.00147	0	0.167	0	0.000316	0	0.000589	0	0.000103	0	0.000023	0
Lime, Hydrated, Packed	lbs	0	0.00206	0	0.762	0	0.000513	0	0.000358	0	0.00013	0	6.57E-06	0
Molasses	lbs	0	0.0044	0	0.48	0	0.0011	0	0.00024	0	0.0000041	0	NP	
Phosphoric Acid, 70% in H2O	lbs	0	0.0067	0	0.882	0	0.00282	0	0.0294	0	0.00171	0	0.000163	0
Potassium Permanganate	lbs	0	0.00981	0	1.16	0	0.00234	0	0.0032	0	0.000422	0	0.000122	0
Sodium Hydroxide, 50% in H2O	lbs	0	0.00977	0	1.09	0	0.00194	0	0.00352	0	0.000403	0	0.000129	0
Other Treatment Chemicals & Materials	lbs	0	0.015	0	1.67	0	0.003	0	0.0065	0	0.00061	0	0.000016	0
Notes:														
<i>Fuel Processing</i>														
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Diesel produced	gal	11717.219	0.017	199.19272	3.02	35386.001	0.0051	59.757815	0.0062	72.646756	0.0017	19.919272	0.0011	12.888941
Gasoline produced	gal	317.5	0.033	10.4775	2.8	889	0.0046	1.4605	0.005	1.5875	0.0015	0.47625	0.001	0.3175
Liquefied Petroleum Gas Produced	gal	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Natural Gas - Compressed Produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Natural Gas Produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Fuel Processing Subtotals				209.67022		36275.001		61.218315		74.234256		20.395522		13.206441
Notes:														
<i>Public water</i>	gal x 1000	5	0.0092	0.046	5	25	0.0097	0.0485	0.0059	0.0295	0.016	0.08	0.000015	0.000075
<i>User-defined water resource #1</i>	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>User-defined water resource #2</i>	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														

Cover System Installation - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
Off-Site Services														
Hazardous waste incineration	lb	0	0.00609	0	2.43	0	0.0016	0	0.00167	0	0.000209	0	0.000087	0
Off-site waste water treatment (POTW)	gal x 1000	0	0.015	0	4.4	0	0.016	0	0.015	0	NP		NP	
Off-site non-hazardous waste landfill	ton	4800	0.16	768	25	120000	0.14	672	0.075	360	0.4	1920	0.0014	6.72
Off-site hazardous waste landfill	ton	0	0.18	0	27.5	0	0.154	0	0.0825	0	0.44	0	0.00154	0
Off-site Laboratory Analysis - Other	sample	0	0.058071	0	6.8534384	0	0.131402	0	0.3038758	0	0.0455698	0	0.0330165	0
Off-site Laboratory Analysis - Metals	sample	0	0.212	0	27.4693	0	0.6423	0	1.5072	0	0.2264	0	0.1643	0
Off-site Laboratory Analysis - Mercury	sample	0	0.0731715	0	9.325458	0	0.2127439	0	0.4982396	0	0.0747359	0	0.0542332	0
Off-site Laboratory Analysis - Inorganic Anions	sample	0	0.0074025	0	0.6459478	0	0.0067681	0	0.0147929	0	0.0022024	0	0.0015542	0
Off-site Laboratory Analysis - Alkalinity	sample	0	0.0174398	0	1.3381922	0	0.0070106	0	0.0132496	0	0.00194	0	0.0012831	0
Off-site Laboratory Analysis - Perchlorate	sample	0	0.023885	0	1.8717054	0	0.0079807	0	0.0141535	0	0.0020547	0	0.0012875	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample	0	0.0336475	0	4.29897	0	0.0954592	0	0.2226646	0	0.0335099	0	0.0242506	0
Off-site Laboratory Analysis - Sulfate	sample	0	0.0141225	0	1.4726728	0	0.0079807	0	0.0136024	0	0.0019797	0	0.0012015	0
Off-site Laboratory Analysis - PCBs	sample	0	0.0512769	0	5.224902	0	0.0833339	0	0.1904774	0	0.0284393	0	0.0212083	0
Off-site Laboratory Analysis - VOCs	sample	0	0.0762045	0	9.016814	0	0.104498	0	0.2270738	0	0.0339508	0	0.0235892	0
Off-site Laboratory Analysis - SVOCs	sample	0	0.0715602	0	7.870422	0	0.1459445	0	0.3373038	0	0.0504853	0	0.0372577	0
Notes:														
Resource Extraction for Electricity														
Coal extraction and processing	MWh	0.06771	3.1	0.2067728	180.0	12.1878	0.8	0.0521367	0.2	0.0101565	0.0	0.0012188	NP	
Natural gas extraction and processing	MWh	0.075258	1.6	0.122806	270.0	20.31966	0.2	0.0135464	13.0	0.978354	0.0	0.0005343	NP	
Nuclear fuel extraction and processing	MWh	0.043956	0.2	0.0068339	25.0	1.0989	0.2	0.0065934	0.5	0.021978	0.0	6.593E-05	NP	
Oil extraction and processing	MWh	0.001554	2.3	0.0035671	270.0	0.41958	1.7	0.0026418	0.1	0.0001072	0.0	6.527E-05	NP	
Other fuel extraction and processing	MWh	0.000222	0	0	0	0	0	0	0	0	0	0	0	0
Resource Extraction Subtotals				0.3399798		34.02594		0.0749183		1.0105957		0.0018843		0
Notes:														
Electricity Transmission														
Transmission and distribution losses	MWh	0.222	1.0342	0.2295924	112.43	24.95946	0.22421	0.0497746	0.4607887	0.1022951	0.0057518	0.0012769	0.0210237	0.0046673
Notes:														

Cover System Installation - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
User-defined Materials														
User-defined material #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #4	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #5	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #6	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #7	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #8	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #9	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #10	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #11	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #12	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #13	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #14	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #15	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #16	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #17	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #18	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #19	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #20	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
User-defined Waste Destinations														
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD	0	y(MMBtu/u		lbs CO2e/u		Ox(lbs/unit)		Ox(lbs/unit)		M(lbs/unit)		APs(lbs/unit)	
User-defined non-hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
Off-site Totals				1188997.6		26199100		102104.36		270482.24		42372.762		34547.955

Cover System Installation - Intermediate Totals

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
Total Grid Electricity Footprint														
On-site grid electricity	MWh	0.222	3.413	0.757686										
Electricity Generation														
Grid electricity	MWh	0.222	6.929	1.538238	1124.3	249.5946	2.2421	0.4977462	4.6078874	1.022951	0.057518	0.012769	0.2102371	0.0466726
Resource Extraction for Electricity														
Coal extraction and processing	MWh	0.06771	3.1	0.2067728	180.0	12.1878	0.8	0.0521367	0.2	0.0101565	0.0	0.0012188	NP	
Natural gas extraction and processing	MWh	0.075258	1.6	0.122806	270.0	20.31966	0.2	0.0135464	13.0	0.978354	0.0	0.0005343	NP	
Nuclear fuel extraction and processing	MWh	0.043956	0.2	0.0068339	25.0	1.0989	0.2	0.0065934	0.5	0.021978	0.0	6.593E-05	NP	
Oil extraction and processing	MWh	0.001554	2.3	0.0035671	270.0	0.41958	1.7	0.0026418	0.1	0.0001072	0.0	6.527E-05	NP	
Other fuel extraction and processing	MWh	0.000222	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Electricity Transmission														
Transmission and distribution losses	MWh	0.222	1.0342	0.2295924	112.43	24.95946	0.22421	0.0497746	0.4607887	0.1022951	0.0057518	0.0012769	0.0210237	0.0046673
Total Grid Electricity Footprint				3		309		1		2		0		0
Total Fuel Footprints														
Total Gasoline Footprint														
On-site gasoline use - Other	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	0	0.124	0	19.77	0	0.027	0	0.00036	0	0.003	0	0.0067	0
Transportation gasoline use - passenger truck	gal	317.5	0.124	39.37	19.79	6283.325	0.035	11.1125	0.00036	0.1143	0.003	0.9525	0.00661	2.098675
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Gasoline produced	gal	317.5	0.033	10.4775	2.8	889	0.0046	1.4605	0.005	1.5875	0.0015	0.47625	0.001	0.3175
Total Gasoline Footprint		317.5		49.8475		7172.325		12.573		1.7018		1.42875		2.416175
Total Diesel Footprint														
On-site diesel use - Other	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
On-site diesel use <75 hp	gal	825.68807	0.139	114.77064	22.21	18338.532	0.1565	129.22018	0.000145	0.1197248	0.0145	11.972477	0.00004	0.0330275
On-site diesel use 75<hp<750	gal	8262.3626	0.139	1148.4684	22.24	183754.95	0.101	834.49863	0.00013	1.0741071	0.009	74.361264	0.00004	0.3304945
On-site diesel use >750 hp	gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
Transportation diesel use	gal	2629.168	0.139	365.45435	22.5	59156.28	0.17	446.95856	0.0054	14.197507	0.0034	8.9391712	0.0000052	0.0136717
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	0	0.139	0	22.545	0	0.0585	0	0.0002	0	0.007	0	0.002605	0
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Diesel produced	gal	11717.219	0.017	199.19272	3.02	35386.001	0.0051	59.757815	0.0062	72.646756	0.0017	19.919272	0.0011	12.888941
Total Diesel Footprint		11717.219		1827.8861		296635.76		1470.4352		88.038095		115.19218		13.266134
Total Biodiesel Footprint														
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Total Biodiesel Footprint		0		0		0		0		0		0		0
Total Natural Gas Footprint														
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Natural gas produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Total Natural Gas Footprint		0		0		0		0		0		0		0
Total Liquefied Petroleum Gas Footprint														
On-site liquified petroleum gas use - Other	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Liquified petroleum gas produced	ccf	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Total Natural Gas Footprint		0		0		0		0		0		0		0
Total Compressed Gas Footprint														
On-site compressed gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
Compressed gas produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Total Natural Gas Footprint		0		0		0		0		0		0		0

Notes:

Note: Please refer to the "Default Conversions" tab for references for the default conversion factors used on this calculation sheet.

Space below available for notes and calculations:

Soil Source Removal - On-Site Footprint (Scope 1)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
On-Site														
On-site Renewable Energy														
Renewable electricity generated on-site	MWh	0	3.413	0										
Landfill gas combusted on-site for energy use	ccf CH4	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined on-site renewable energy use #1	gal	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined on-site renewable energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
On-site Conventional Energy														
On-site grid electricity	MWh	0.0074	3.413	0.0252562										
On-site diesel use - Other	Gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
On-site diesel use <75 hp	Gal	99.082569	0.139	13.772477	22.21	2200.6239	0.1565	15.506422	0.000145	0.014367	0.0145	1.4366972	0.00004	0.0039633
On-site diesel use 75<hp<750	Gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	Gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
On-site gasoline use - Other	Gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	Gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	Gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
On-site compressed natural gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed natural gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site liquified petroleum gas use - Other	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	gal	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Other forms of on-site conventional energy use #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Other forms of on-site conventional energy use #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
On-site Conventional Energy Subtotals				14		2,201		16		0		1		0
Notes:														
Other On-site Emissions														
On-site HAP process emissions	lbs	0											1	0
On-site GHG emissions	lbs CO2e	0			1	0								
On-site carbon storage	lbs CO2e	0			1	0								
GHG avoided by flaring on-site landfill methane	Lbs	0			-262	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Other on-site NOx emissions or reductions	lbs	0					1	0						
Other on-site SOx emissions or reductions	lbs	0							1	0				
Other on-site PM emissions or reductions	lbs	0									1	0		
User-defined recycled/reused on-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused on-site #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
On-site Totals				13.80		2,201		16		0		1		0

Soil Source Removal - Electricity Generation Footprint (Scope 2)

Contributors to Footprints	Units	Usage	Energy		GHG		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Electricity Generation														
Grid electricity	MWh	0.0074	6.929	0.0512746	352	2.6048	1.504	0.0111296	1.46966	0.0108755	0.07546	0.0005584	0.0454035	0.000336
Voluntary purchase of renewable electricity	MWh	0												
Voluntary purchase of RECs	MWh	0												
Notes:														

Soil Source Removal - Transportation Footprint (Scope 3a)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv. Factor	MMBtus	Conv. Factor	lbs CO2e	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs	Conv. Factor	lbs
Conventional Energy														
Transportation diesel use	gal	161.267	0.139	22.416113	22.5	3628.5075	0.17	27.41539	0.0054	0.8708418	0.0034	0.5483078	0.0000052	0.0008386
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	0	0.139	0	22.545	0	0.0585	0	0.0002	0	0.007	0	0.002605	0
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	0	0.124	0	19.77	0	0.027	0	0.00036	0	0.003	0	0.0067	0
Transportation gasoline use - passenger truck	gal	15.9	0.124	1.9716	19.79	314.661	0.035	0.5565	0.00036	0.005724	0.003	0.0477	0.00661	0.105099
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
User-defined conventional energy transportation #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined conventional energy transportation #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Conventional Energy Subtotals				24		3,943		28		1		1		0
Notes:														
Renewable Energy														
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
User-defined renewable energy transportation #1	TBD	0	Biodiesel		0	0	0	0	0	0	0	0	Ref.	
User-defined renewable energy transportation #2	TBD	0	mpg or pmpg		0	0	0	0	0	0	0	0	0	0
Renewable Energy Subtotals				0		0		0		0		0		0
Notes:														
Transportation Totals				24		3943		28		1		1		0

Soil Source Removal - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
Construction Materials														
Aluminum, Rolled Sheet	lb	0	0.0633	0	9.15	0	0.0148	0	0.0283	0	0.0088	0	0.00102	0
Asphalt, mastic	lb	0	0.0412	0	0.85	0	0.00271	0	0.00798	0	0.000766	0	0.00107	0
Asphalt, paving-grade	lb	0	0.5	0	8.58	0	0.0299	0	0.0969	0	0.0091	0	0.0133	0
Ethanol, Corn, 95%	lb	0	0.0318	0	-0.0199	0	0.00425	0	0.00303	0	0.000469	0	0.0000846	0
Ethanol, Corn, 99.7%	lb	0	0.0324	0	0.0591	0	0.00431	0	0.0031	0	0.000472	0	0.000087	0
Ethanol, Petroleum, 99.7%	lb	0	0.0205	0	1.25	0	0.00199	0	0.00214	0	0.000277	0	0.0000589	0
Gravel/Sand Mix, 65% Gravel	lb	127500	0.0000248	3.162	0.0024	306	0.000018	2.295	4.52E-06	0.5763	2.61E-06	0.332775	3.08E-07	0.03927
Gravel/sand/clay	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
HDPE	lb	100	0.0332	3.32	1.94	194	0.00325	0.325	0.00409	0.409	0.000439	0.0439	0.0000641	0.00641
Photovoltaic system (installed)	W	0	0.0336	0	4.47	0	0.015	0	0.032	0	0.00063	0	0.0000029	0
PVC	lb	0	0.0262	0	2.02	0	0.004	0	0.00274	0	0.000372	0	0.000375	0
Portland cement, US average	lb	0	0.0139	0	1.34	0	0.00654	0	0.0104	0	0.00378	0	0.00097	0
Ready-mixed concrete, 20 MPa	ft3	0	0.217	0	19.5	0	0.0975	0	0.154	0	0.057	0	0.0141	0
Round Gravel	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Sand	lb	0	0.0000248	0	0.0024	0	0.000018	0	4.52E-06	0	2.61E-06	0	3.08E-07	0
Stainless Steel	lb	0	0.0116	0	3.4	0	0.0075	0	0.012	0	0.0044	0	0.000144	0
Steel	lb	0	0.0044	0	1.1	0	0.0014	0	0.0017	0	0.00056	0	0.000067	0
Other refined construction materials	lb	0	0.01885	0	2.115	0	0.0040375	0	0.0051325	0	0.0014428	0	0.0001625	0
Other unrefined construction materials	lb	0	0.000028	0	0.00335	0	0.0000165	0	0.000015	0	0.000002	0	2.05E-10	0
Notes:														

Soil Source Removal - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
<i>Treatment Materials & Chemicals</i>														
Cheese Whey	lbs	0	0.0025	0	0.031	0	0.000062	0	0.000033	0	0.000002	0	NP	
Emulsified vegetable oil	lbs	0	0.0077	0	3.44	0	0.0066	0	0.0019	0	0.000033	0	NP	
Granular activated carbon, primary	lbs	0	0.0356	0	4.82	0	0.0793	0	0.128	0	0.000987	0	0.000657	0
Granular activated carbon, regenerated	lbs	0	0.00873	0	1.7	0	0.00733	0	0.0129	0	0.000886	0	0.000671	0
Hydrogen Peroxide, 50% in H2O	lbs	0	0.00979	0	1.19	0	0.00142	0	0.0024	0	0.000308	0	0.0000629	0
Iron (II) Sulfate	lbs	0	0.00147	0	0.167	0	0.000316	0	0.000589	0	0.000103	0	0.000023	0
Lime, Hydrated, Packed	lbs	0	0.00206	0	0.762	0	0.000513	0	0.000358	0	0.00013	0	6.57E-06	0
Molasses	lbs	0	0.0044	0	0.48	0	0.0011	0	0.00024	0	0.0000041	0	NP	
Phosphoric Acid, 70% in H2O	lbs	0	0.0067	0	0.882	0	0.00282	0	0.0294	0	0.00171	0	0.000163	0
Potassium Permanganate	lbs	0	0.00981	0	1.16	0	0.00234	0	0.0032	0	0.000422	0	0.000122	0
Sodium Hydroxide, 50% in H2O	lbs	0	0.00977	0	1.09	0	0.00194	0	0.00352	0	0.000403	0	0.000129	0
Other Treatment Chemicals & Materials	lbs	0	0.015	0	1.67	0	0.003	0	0.0065	0	0.00061	0	0.000016	0
Notes:														
<i>Fuel Processing</i>														
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Diesel produced	gal	260.34957	0.017	4.4259427	3.02	786.2557	0.0051	1.3277828	0.0062	1.6141673	0.0017	0.4425943	0.0011	0.2863845
Gasoline produced	gal	15.9	0.033	0.5247	2.8	44.52	0.0046	0.07314	0.005	0.0795	0.0015	0.02385	0.001	0.0159
Liquefied Petroleum Gas Produced	gal	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Natural Gas - Compressed Produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Natural Gas Produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Fuel Processing Subtotals				4.9506427		830.7757		1.4009228		1.6936673		0.4664443		0.3022845
Notes:														
<i>Public water</i>	gal x 1000	0.5	0.0092	0.0046	5	2.5	0.0097	0.00485	0.0059	0.00295	0.016	0.008	0.000015	0.0000075
<i>User-defined water resource #1</i>	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>User-defined water resource #2</i>	gal x 1000	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														

Soil Source Removal - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
Off-Site Services														
Hazardous waste incineration	lb	0	0.00609	0	2.43	0	0.0016	0	0.00167	0	0.000209	0	0.000087	0
Off-site waste water treatment (POTW)	gal x 1000	0	0.015	0	4.4	0	0.016	0	0.015	0	NP		NP	
Off-site non-hazardous waste landfill	ton	100.6	0.16	16.096	25	2515	0.14	14.084	0.075	7.545	0.4	40.24	0.0014	0.14084
Off-site hazardous waste landfill	ton	0	0.18	0	27.5	0	0.154	0	0.0825	0	0.44	0	0.00154	0
Off-site Laboratory Analysis - Other	sample	0	0.058071	0	6.8534384	0	0.131402	0	0.3038758	0	0.0455698	0	0.0330165	0
Off-site Laboratory Analysis - Metals	sample	0	0.212	0	27.4693	0	0.6423	0	1.5072	0	0.2264	0	0.1643	0
Off-site Laboratory Analysis - Mercury	sample	0	0.0731715	0	9.325458	0	0.2127439	0	0.4982396	0	0.0747359	0	0.0542332	0
Off-site Laboratory Analysis - Inorganic Anions	sample	0	0.0074025	0	0.6459478	0	0.0067681	0	0.0147929	0	0.0022024	0	0.0015542	0
Off-site Laboratory Analysis - Alkalinity	sample	0	0.0174398	0	1.3381922	0	0.0070106	0	0.0132496	0	0.00194	0	0.0012831	0
Off-site Laboratory Analysis - Perchlorate	sample	0	0.023885	0	1.8717054	0	0.0079807	0	0.0141535	0	0.0020547	0	0.0012875	0
Off-site Laboratory Analysis - Nitrogen/Nitrate	sample	0	0.0336475	0	4.29897	0	0.0954592	0	0.2226646	0	0.0335099	0	0.0242506	0
Off-site Laboratory Analysis - Sulfate	sample	0	0.0141225	0	1.4726728	0	0.0079807	0	0.0136024	0	0.0019797	0	0.0012015	0
Off-site Laboratory Analysis - PCBs	sample	0	0.0512769	0	5.224902	0	0.0833339	0	0.1904774	0	0.0284393	0	0.0212083	0
Off-site Laboratory Analysis - VOCs	sample	12	0.0762045	0.9144538	9.016814	108.20177	0.104498	1.2539765	0.2270738	2.7248856	0.0339508	0.4074101	0.0235892	0.2830706
Off-site Laboratory Analysis - SVOCs	sample	0	0.0715602	0	7.870422	0	0.1459445	0	0.3373038	0	0.0504853	0	0.0372577	0
Notes:														
Resource Extraction for Electricity														
Coal extraction and processing	MWh	0.000444	3.1	0.0013559	180.0	0.07992	0.8	0.0003419	0.2	0.0000666	0.0	7.992E-06	NP	
Natural gas extraction and processing	MWh	0.00074	1.6	0.0012075	270.0	0.1998	0.2	0.0001332	13.0	0.00962	0.0	5.254E-06	NP	
Nuclear fuel extraction and processing	MWh	0.000148	0.2	2.301E-05	25.0	0.0037	0.2	0.0000222	0.5	0.000074	0.0	2.22E-07	NP	
Oil extraction and processing	MWh	0.00037	2.3	0.0008493	270.0	0.0999	1.7	0.000629	0.1	2.553E-05	0.0	1.554E-05	NP	
Other fuel extraction and processing	MWh	0	0	0	0	0	0	0	0	0	0	0	0	0
Resource Extraction Subtotals				0.0034357		0.38332		0.0011263		0.0097861		2.901E-05		0
Notes:														
Electricity Transmission														
Transmission and distribution losses	MWh	0.0074	1.0342	0.0076531	35.2	0.26048	0.1504	0.001113	0.146966	0.0010875	0.007546	5.584E-05	0.0045403	3.36E-05
Notes:														

Soil Source Removal - Off-Site Footprint (Scope 3b)

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
User-defined Materials														
User-defined material #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #4	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #5	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #6	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #7	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #8	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #9	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #10	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #11	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #12	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #13	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #14	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #15	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #16	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #17	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #18	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined material #19	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
User-defined Waste Destinations														
User-defined recycled/reused off-site #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined recycled/reused off-site #3	TBD	0	y(MMBtu/u		lbs CO2e/u		Ox(lbs/unit)		Ox(lbs/unit)		M(lbs/unit)		APs(lbs/unit)	
User-defined non-hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined non-hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #1	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #2	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
User-defined hazardous waste destination #3	TBD	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes:														
Off-site Totals				28.458785		3957.1213		19.365989		12.962677		41.498614		0.7719163

Soil Source Removal - Intermediate Totals

Category	Units	Usage	Energy		Greenhouse Gas		NOx		SOx		PM		HAPs	
			Conv.	MMBtus	Conv.	lbs CO2e	Conv.	lbs	Conv.	lbs	Conv.	lbs	Conv.	lbs
			Factor		Factor		Factor		Factor		Factor		Factor	
Total Grid Electricity Footprint														
On-site grid electricity	MWh	0.0074	3.413	0.0252562										
Electricity Generation														
Grid electricity	MWh	0.0074	6.929	0.0512746	1124.3	8.31982	2.2421	0.0165915	4.6078874	0.0340984	0.057518	0.0004256	0.2102371	0.0015558
Resource Extraction for Electricity														
Coal extraction and processing	MWh	0.000444	3.1	0.0013559	180.0	0.07992	0.8	0.0003419	0.2	0.0000666	0.0	7.992E-06	NP	
Natural gas extraction and processing	MWh	0.00074	1.6	0.0012075	270.0	0.1998	0.2	0.0001332	13.0	0.00962	0.0	5.254E-06	NP	
Nuclear fuel extraction and processing	MWh	0.000148	0.2	2.301E-05	25.0	0.0037	0.2	0.0000222	0.5	0.000074	0.0	2.22E-07	NP	
Oil extraction and processing	MWh	0.00037	2.3	0.0008493	270.0	0.0999	1.7	0.000629	0.1	2.553E-05	0.0	1.554E-05	NP	
Other fuel extraction and processing	MWh	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Electricity Transmission														
Transmission and distribution losses	MWh	0.0074	1.0342	0.0076531	112.43	0.831982	0.22421	0.0016592	0.4607887	0.0034098	0.0057518	4.256E-05	0.0210237	0.0001556
Total Grid Electricity Footprint				0		10		0		0		0		0
Total Fuel Footprints														
Total Gasoline Footprint														
On-site gasoline use - Other	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
On-site gasoline use <25 hp	gal	0	0.124	0	17.48	0	0.037	0	0.00025	0	0.165	0	0.00008	0
On-site gasoline use >25 hp	gal	0	0.124	0	19.93	0	0.032	0	0.00029	0	0.002	0	0.00009	0
Transportation gasoline use	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Transportation gasoline use - car	gal	0	0.124	0	19.77	0	0.027	0	0.00036	0	0.003	0	0.0067	0
Transportation gasoline use - passenger truck	gal	15.9	0.124	1.9716	19.79	314.661	0.035	0.5565	0.00036	0.005724	0.003	0.0477	0.00661	0.105099
Transportation gasoline use - User Defined	gal	0	0.124	0	19.6	0	0.11	0	0.0045	0	0.00054	0	0.000039	0
Gasoline produced	gal	15.9	0.033	0.5247	2.8	44.52	0.0046	0.07314	0.005	0.0795	0.0015	0.02385	0.001	0.0159
Total Gasoline Footprint		15.9		2.4963		359.181		0.62964		0.085224		0.07155		0.120999
Total Diesel Footprint														
On-site diesel use - Other	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
On-site diesel use <75 hp	gal	99.082569	0.139	13.772477	22.21	2200.6239	0.1565	15.506422	0.000145	0.014367	0.0145	1.4366972	0.00004	0.0039633
On-site diesel use 75<hp<750	gal	0	0.139	0	22.24	0	0.101	0	0.00013	0	0.009	0	0.00004	0
On-site diesel use >750 hp	gal	0	0.139	0	22.24	0	0.149	0	0.00013	0	0.006	0	0.00004	0
Transportation diesel use	gal	161.267	0.139	22.416113	22.5	3628.5075	0.17	27.41539	0.0054	0.8708418	0.0034	0.5483078	0.0000052	0.0008386
Transportation diesel use - car	gal	0	0.139	0	22.57	0	0.015	0	0.0002	0	0.003	0	0.00252	0
Transportation diesel use - passenger truck	gal	0	0.139	0	22.545	0	0.0585	0	0.0002	0	0.007	0	0.002605	0
Transportation diesel use - User Defined	gal	0	0.139	0	22.5	0	0.17	0	0.0054	0	0.0034	0	0.0000052	0
Diesel produced	gal	260.34957	0.017	4.4259427	3.02	786.2557	0.0051	1.3277828	0.0062	1.6141673	0.0017	0.4425943	0.0011	0.2863845
Total Diesel Footprint		260.34957		40.614533		6615.3871		44.249595		2.4993761		2.4275993		0.2911864
Total Biodiesel Footprint														
On-site biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
On-site biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Transportation biodiesel use - User Defined	gal	0	0.127	0	22.3	0	0.2	0	0	0	0.00099	0	NP	
Biodiesel produced	gal	0	0.029	0	-16.8	0	0.018	0	0.033	0	0.00082	0	NP	
Total Biodiesel Footprint		0		0		0		0		0		0		0
Total Natural Gas Footprint														
On-site natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Transportation natural gas use - User Defined	ccf	0	0.103	0	13.1	0	0.01	0	0.0000063	0	0.00076	0	0.0000084	0
Natural gas produced	ccf	0	0.0052	0	2.2	0	0.0037	0	0.0046	0	0.000072	0	0.0000061	0
Total Natural Gas Footprint		0		0		0		0		0		0		0
Total Liquefied Petroleum Gas Footprint														
On-site liquified petroleum gas use - Other	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
On-site liquified petroleum gas use	ccf	0	NP		12.69	0	0.021	0	0.00013	0	0.001	0	0	0
Liquified petroleum gas produced	ccf	0	0.088	0	1.47	0	0.0016	0	0.0024	0	0.0007	0	0.0003	0
Total Natural Gas Footprint		0		0		0		0		0		0		0
Total Compressed Gas Footprint														
On-site compressed gas use - Other	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
On-site compressed gas use	ccf	0	NP		1957.835	0	16.0325	0	0.023045	0	0.2775	0	0	0
Compressed gas produced	ccf	0	19.983	0	343.92	0	0.4732	0	2.1651	0	0.1846	0	0.2895	0
Total Natural Gas Footprint		0		0		0		0		0		0		0

Notes:

Note: Please refer to the "Default Conversions" tab for references for the default conversion factors used on this calculation sheet.

Space below available for notes and calculations:

Appendix C

Quality Assurance Project Plan

C&S Engineers, Inc.
499 Colonel Eileen Collins Blvd.
Syracuse, New York 13212



Quality Assurance Project Plan

Coventry Commons

130-132 Harrison Street, Newark, New York

NYSDEC Site No. 859036

Prepared for:



Coventry Commons LLC
1201 East Fayette Street
Syracuse, New York

February 2025

C&S Project No. W96.007.009



Quality Assurance Project Plan

Coventry Commons
130-132 Harrison Street
Newark, Wayne County, New York
NYSDEC Site No. 859036

Prepared by:



C&S Engineers, Inc.
499 Colonel Eileen Collins Blvd
Syracuse, New York 13212

Prepared for:



Coventry Commons LLC
1201 East Fayette Street
Syracuse, New York 14203

February 2025

C&S Project#: W96.007.009

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APPENDICES

Appendix A Supporting Documentation for PFAS Analysis

1.0 INTRODUCTION

C&S' Quality Control (QC) Program is a vital part of its approach to remedial investigations. Through our thorough QC program, our firm is able to provide accurate and dependable data. QC also provides safe working conditions for field staff.

The QC program contains procedures, which provide for collected data to be properly evaluated, and which document that quality control procedures have been followed in the collection of samples. The QC program represents the methodology and measurement procedures used in collecting quality field data. This methodology includes the proper use of equipment, documentation of sample collection, and sample handling practices.

Procedures used in the firm's QC program are consistent with federal, state, and local regulations, as well as, appropriate professional and technical standards.

This QC program has been organized into the following areas:

- QC Objectives
- Field Sampling Techniques
 - Procedures
 - Preparation
 - Measurement
 - Decontamination
- Sample Management

2.0 QUALITY CONTROL OBJECTIVES

2.1 Data Quality Objectives

Data Quality Objectives (DQOs) are statements which describe the desired quality of data necessary to meet the objectives of the sampling program. The DQOs for the site sampling program were formulated during the scoping effort and developed as part of this Plan. The general steps followed in preparation of the DQOs were as follows:

- Identification of the media to be sampled – Identifies the media being investigated (e.g., ground water, surface soil).
- Identification of the data uses – Identifies the intended use of the data according to the following:
 - Site Characterization – Data are used to determine the composition, nature, and extent of contamination.
 - Risk Assessment – Data are used to evaluate the actual or potential risks posed by contaminants determined to be present on-site. Particular attention is given to sampling at locations where human exposure is possible.
 - Health and Safety Plan (HASP) – Data are used to establish the level of protection needed for on-site workers during site characterization activities.
 - Monitoring – Data are used during the monitoring of the remedial action to assess the effectiveness of such action.
 - PRP Enforcement – Data are used to help establish potentially responsible parties (PRP's).
 - Evaluation of Alternatives – Data are used to evaluate various proposed remedial technologies and assist in proper design of alternatives.
- Identification of the data types – Identifies what types of analyses are to be performed.
- Sample Collected – Describes the sample types to be collected.
 - Environmental – Refers to a specific media sampled such as water, soil, air, or biological.
 - Source – Refers to sampling an actual contamination source.
 - Grab – A discrete sample representative of a specific location.
 - Composite – A sample that represents a mixture of a number of grab samples that represents the average properties over the extent of areas sampled.
 - Biased – Sampling that focuses on a specific area of expected contamination or uncontaminated area (background).
- Identification of the data quality needs – Identifies the analytical options available to support data collection activities and are identified as follows:
 - Level I: Field Screening – portable type instruments which provide real-time data.
 - Level II: Field Analysis – portable analytical instruments in an on-site lab or

- transported to the site.
- Level III: Standard Analytical Protocols – standard analytical protocols or without the NYSDEC Analytical Services Protocol (ASP) (2000) deliverables / reportables documentation.
 - Level IV: NYSDEC ASP Reportables / Deliverables – rigorous QA / QC protocols and reportables / deliverables documentation; NYSDEC ASP (2000) Category B deliverables.
 - Level V: Non-Standard – methods which have been modified to meet specific site study or remediation needs or by use of some other specialized analytical methods that cannot be obtained through standard or typical avenues of analytical support.
- Identification of Data Quality Factors – Describes factors which influence the quality or quantity of data to be collected. Primary contaminants and associated levels of concern are identified concerning ARARs or potential risks. The required detection limit are also given or referenced.
 - Identification of QA / QC Samples – Specifies additional samples to be collected to support Quality Assurance / Quality Control (QA / QC) procedures. Additional samples to be collected could include:
 - Matrix Spike/Matrix Spike Duplicates – Matrix spike and matrix spike duplicate samples are collected as a duplicate sample to which the analytical laboratory will add known amounts of target analytes. These QA / QC samples are intended to assess the extraction procedure used by the laboratory.
 - Blind Duplicates – Blind duplicates are a duplicate of another sample submitted for analysis. The location of the sample is recorded in the field book and not disclosed on the chain of custody. These QA / QC samples are intended to assess the repeatability of analysis by the laboratory.
 - Field Blanks – Field (equipment) blanks are samples which are obtained by running analyte-free water through the sample collection equipment in a way that is identical to the sample collection procedures. Field blanks may be used during QA / QC procedures to evaluate if sampling equipment has contributed contaminants to the samples.
 - Trip Blanks – Trip blanks are samples which are prepared prior to the sampling event in the same type of sample container and are kept with the collected samples throughout the sampling event unit analysis. Trip blank vials are not opened in the field and are analyzed for volatile organics only.

2.2 Sampling Procedures

All sampling objectives, locations, and procedures have been included as the Remedial Investigation Work Plan (RIWP) and are further described in **Section 3.0**. Items including Field Measurement Techniques, General Field Decontamination, and Sample Management have also been included in **Section 3.0** and **Section 4.0**.

2.3 Laboratory Certification and Coordination

The Environmental Laboratory Approval Program (ELAP) certification is an accreditation issued by the New York State Department of Health (NYSDOH). Such laboratories have demonstrated that they consistently ensure the accuracy and reliability of samples analyzed. All chemical analyses for samples from the site will be completed by an ELAP laboratory capable of performing project specific analyses as indicated in this QA / QC plan. The project QA / QC Officer will also be responsible for all project related laboratory coordination.

Supporting documentation related to per- and polyfluoroalkyl substances (PFAS) analysis, such as standard operating procedures (SOPs), analyte lists, and method detection limits (MDLs) are provided in **Appendix A**.

2.4 Analytical Methodologies

Sampling and analysis will be performed for the Target Compound List (TCL) parameters including volatiles. The specific analyses will be conducted according to the following NYSDEC ASP 2000 methodologies:

Table 2-1: ASP 2000 Methodologies

Parameter Group	USEPA Analysis Method
Volatiles	8260C or TO-15 for air
Semivolatiles	8270D
PCBs	8082A
Pesticides	8081B
Herbicides	8151A
Metals / Inorganics	6010D, 7471B, 9010C/9012B, 7196A
PFOA/PFOS	1633

Samples will be analyzed and the data will be presented in Category B reportables / deliverables format.

2.5 Analytical Quality Control

Analytical quality control for this Project will be consistent with the methodology and quality assurance/quality control requirements in the NYSDEC ASP 2000.

The tables on the following page detail sample volumes, containers, preservation, and holding time for typical analytes.

2.6 Data Usability Summary Report

A Data Usability Summary Report (DUSR) will be prepared consistent with NYSDECs Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports as given in DER-10. The main objective of the DUSR is to determine whether the data presented meets the project specific needs for data quality and data use.

Table 2-2: Water Samples

Type of Analysis	Type and Size of Container	Number of Containers and Sample Volume (per sample)	Preservation	Holding Time Until Extraction / Analysis
VOCs	40-ml glass vial with Teflon-backed septum	Two (2); fill completely, no headspace	Cool to 4°C (ice in cooler), Hydrochloric acid to pH<2	14 days
SVOCs	1,000- or 200-ml amber glass jar	One (1); fill completely	Cool to 4°C (ice in cooler)	7 days to extraction 40 days after extraction
Pesticides	1,000-ml amber glass jar	One (1); fill completely	Cool to 4°C (ice in cooler)	7 days to extraction 40 days after extraction
PCBs	1,000-ml amber glass jar	One (1); fill completely	Cool to 4°C (ice in cooler)	7 days to extraction 40 days after extraction
Metals	250-ml HDPE	One (1); fill completely	Cool to 4°C (ice in cooler), Nitric acid to pH<2	180 days (28 days for mercury)
Cyanide	1,000-ml HDPE	One (1); fill completely	Cool to 4°C (ice in cooler), Nitric acid to pH<2	14 days

All sample bottles will be prepared in accordance with USEPA bottle washing procedures.

Consult with laboratory as glassware may vary by laboratory.

Holding time begins at the time of sample collection.

Table 2-3: Soil Samples

Type of Analysis	Type and Size of Container	Number of Containers and Sample Volume (per sample)	Preservation	Holding Time Until Extraction / Analysis
VOCs	4-oz glass jar with Teflon-lined cap	One (1); fill as completely as possible	Cool to 4°C (ice in cooler)	14 days
VOCs via EPA 5035	40-ml vials with sodium bisulfate, methanol, and / or DI water	Three (3); 5 grams each	Cool to 4°C (ice in cooler)	2 days

Type of Analysis	Type and Size of Container	Number of Containers and Sample Volume (per sample)	Preservation	Holding Time Until Extraction / Analysis
SVOCs	4-oz glass jar with Teflon-lined cap	One (1); fill as completely as possible	Cool to 4°C (ice in cooler)	7 days to extraction 40 days after extraction
Pesticides	4-oz glass jar with Teflon-lined cap	One (1); fill as completely as possible	Cool to 4°C (ice in cooler)	14 days to extraction 40 days after extraction
PCBs	4-oz glass jar with Teflon-lined cap	One (1); fill as completely as possible	Cool to 4°C (ice in cooler)	7 days to extraction 40 days after extraction
Metals	4-oz glass jar with Teflon-lined cap	One (1); fill as completely as possible	Cool to 4°C (ice in cooler)	180 days (28 days for mercury)
Cyanide	4-oz glass jar with Teflon-lined cap	One (1); fill as completely as possible	Cool to 4°C (ice in cooler)	14 days

All sample bottles will be prepared in accordance with USEPA bottle washing procedures.

Consult with laboratory as glassware may vary by laboratory.

Holding time begins at the time of sample collection.

Applicable information for PFAS samples is as follows:

Table 2-4: PFAS Samples

Matrix	Type and Size of Container	Number of Containers and Sample Volume (per sample)	Preservation	Holding Time Until Extraction / Analysis
Water	250-ml polypropylene	Two (2); fill as completely as possible	Cool to 4°C (ice in cooler), 1.25 grams Trizma	14 days to extraction 28 days after extraction
Soil	250-ml HDPE or polypropylene	One (1); fill as completely as possible	Cool to 4°C (ice in cooler)	28 days

All sample bottles will be prepared in accordance with USEPA bottle washing procedures.

Consult with laboratory as glassware may vary by laboratory.

Holding time begins at the time of sample collection.

3.0 FIELD SAMPLING PLAN

3.1 Sampling Procedures

The following sections provide procedures for collecting a variety of samples, not all of which will be needed at this site.

3.1.1 Preparation for Sampling

The sample collection technique is of prime importance to assure the integrity of the collected sample. The following techniques include provisions so that:

- A representative sample is obtained;
- Contamination of the sample is minimized;
- The sample is properly preserved; and
- An acceptable Chain-of-Custody record is maintained.

The QA / QC Sampling Component of the Plan includes:

- Incorporation of accepted sampling techniques referenced in the sampling plan;
- Procedures for documenting any field actions contrary to the QA / QC Plan;
- Documentation of all preliminary activities such as equipment check-out, calibrations, and container storage and preparation;
- Documentation of field measurement quality control data (quality control procedures for such measurements shall be equivalent to corresponding QC procedures);
- Documentation of field activities;
- Documentation of post-field activities including sample shipment and receipt, field team debriefing, and equipment check-in;
- Generation of quality control samples including duplicate samples, field blanks, equipment blanks, and trip blanks;
- The use of these samples in the context of data evaluation with details of the methods employed (including statistical methods) and of the criteria upon which the information generated will be judged; and

- The number of QA / QC samples generally required are shown in the following table. When there is a disagreement with QA / QC sample numbers and types, between this document and a Work Plan, the Work Plan shall prevail.

Table 3-1: QA / QC Samples

Sample Type	Analysis	Number	Note
MS / MSD	Full Suite	Every sample batch, or minimum of 5% (1 per 20)	Two additional samples at a given location
Trip Blank	VOC	One per day or 5% (1 per 20), whichever is more frequent	Vials of clean water provided by laboratory. Packed with collected samples.
Field Blank	PFAS	One per day or 5% (1 per 20), or whichever is more frequent	Clean water passed through / over decontaminated sample collection equipment / tubing
Blind Duplicate	Same as field sample	Every sample batch, or minimum of 5% (1 per 20)	An additional sample at a given location

The personnel responsible for collection of groundwater, soil, air, miscellaneous media, and petroleum spill remediation / verification samples will be familiar with standard sampling procedures and follow the appropriate protocol. Field records will be maintained in bound notebooks with numbered pages to document daily instrument calibration, locations sampled, field observations, and weather conditions. Each page will be dated and signed by the sampler. Each notebook will be numbered and a log of notebooks will be maintained by the project manager.

Prior to sampling, all equipment must be procured and accommodations for sample container delivery, and sample shipment must be made. The following is a list of general equipment that would be on hand for sampling events. Special equipment for each sampling event is presented in the section describing that specific sampling event.

- Field Data Sheets
- Chain-of-Custody forms
- Engineers tape and folding ruler with 0.01-foot intervals
- Field Record Sheets
- Latex gloves
- Face-safety shield
- Tyvek coveralls
- Respirators
- Photoionization detector
- Bio-degradable phosphate free detergent
- Coolers and ice (no blue ice)
- Drums
- Sample bottles
- Aluminum foil
- Duct and filament tape
- Tap water
- Distilled water
- Laboratory grade methanol and hexane
- Wash buckets
- Decontamination towels / cloths
- Large disposal containers
- Large plastic sheets

3.2 Sample Collection Techniques

3.2.1 Surface Soil Sampling

Surface soil samples will be collected at the locations and depths indicated in the Work Plan. When sampling is conducted in areas where a vegetative turf has been established, a pre-cleaned trowel or shovel will be used to remove the turf so that it may be replaced at the conclusion of sampling. Samples will then be collected using a pre-cleaned, stainless steel spoon. When the sample is obtained, it will be deposited into a pre-cleaned stainless steel bowl or plastic pail for mixing prior to filling the sample containers. The soil will be mixed thoroughly until the material is homogenized. At that point, the soil will be placed into the laboratory provided containers.

Once removed from the ground the soil will immediately be observed for soil characteristics, including general soil type (sand, silt, clay), moisture, and evidence of impairment ((e.g. petroleum or chemical odors, staining, volatile organic vapors as measured by a photoionization detector (PID)). The PID will be calibrated daily (and more often as required by the manufacturer's data) prior to use in the field, using calibration test gases.

When PFAS sampling / testing is required, no sampling equipment components or sample containers should come into contact with aluminum foil, LDPE, glass, or Teflon tape. Acceptable equipment includes stainless steel spoons and bowl, HDPE containers, and steel shovels or augers that are not coated.

3.2.2 Subsurface Soil Sampling

3.2.2.1 Direct Push Drilling

Generally, soil borings will be advanced with a Geoprobe direct push sampling system. The use of direct push technology allows for rapid sampling, observation, and characterization of relatively shallow overburden soils. The Geoprobe utilizes a four to five-foot macrocore sampler, with disposable polyethylene sleeves. Soil cores will be retrieved in four or five-foot sections, and can be easily cut from the polyethylene sleeves for observation and sampling. The macrocore sampler will be decontaminated between boring locations using an alconox and water solution.

Prior to initiating drilling activities, the Macrocores, drive rods, and pertinent equipment, will be steam cleaned or washed with an alconox and water solution. This cleaning procedure will also be used between each boring. Throughout and after the cleaning processes, direct contact between the equipment and the ground surface will be avoided. Plastic sheeting and/or clean support structures (e.g., pallets, sawhorses) will be used.

Test borings will be advanced with 2-inch (or larger) inside diameter (ID) direct push Macrocore through overburden soils. Drilling fluids, other than potable water will not be allowed without special consideration and agreement from NYSDEC. The use of lubricants is also not allowed unless approved by the NYSDEC representative.

3.2.2.2 Hollow Stem Auger

The drilling and installation of monitoring wells will be performed using a rotary drill rig which will have sufficient capacity to perform 4 1/4-inch ID hollow-stem auger drilling in the overburden, retrieve Macrocore or split-spoon samples. Equipment sizes and diameters may vary based on project-specific criteria. Any investigative derived waste generated during the advancement of soil borings and monitoring well installations will be containerized and characterized for proper disposal.

Prior to initiating drilling activities, the augers, rods, Macrocore, split spoons, and other pertinent equipment will be steam cleaned or washed with an alconox and water solution. This cleaning procedure will also be used between each boring. Steam cleaning activities will be performed in a designated on-site decontamination area. During and after the cleaning processes, direct contact between the equipment and the ground surface will be avoided. Plastic sheeting and/or clean support structures (e.g., pallets, sawhorses) will be used.

Test borings will be advanced with 4 1/4-inch ID hollow stem augers through overburden, driven by truck-, track-, or trailer-mounted drilling equipment. Alternative methods of drilling or equipment may be allowed or requested for project specific criteria, but must be approved by the NYSDEC. Drilling fluids, other than water from a NYSDEC-approved source, will not be allowed without special consideration and agreement from NYSDEC. The use of lubricants is also not allowed unless approved by the NYSDEC representative.

Hollow stem auger advanced groundwater-monitoring wells typically utilize minimum 2-inch threaded flush joint PVC pipe with 0.010-in. slotted screen or pre-packed well screens. PVC piping used for risers and screens will conform to the requirements of ASTM-D 1785 Schedule 40 pipe. All materials used to construct the wells will be NSF / ASTM approved. Solvent PVC glue shall not be used at any time in the construction of the wells. The bottom of the screen shall be sealed with a treated wood cap or plastic plug. No lead shot or lead wool is to be employed in sealing the bottom of the well or for sealant at any point in the well.

3.2.2.3 Subsurface Soil Sample Screening and Collection

When polyethylene sleeves or split spoons are removed from borings, the soil will immediately be observed for soil characteristics, including general soil type (sand, silt, clay), moisture, confining layers, and evidence of impairment (e.g. petroleum or chemical odors, staining, volatile organic vapors as measured by a PID – ex-situ and headspace). Generally, sample selection is based on evidence of impairment, depth, spatial distribution, or for delineation purposes. Normally, sample locations will not be known until the end of each day in the field. Therefore, samples for potential analysis will be placed in new Ziploc bags and placed on ice until they are placed into laboratory provided glassware.

When PFAS sampling / testing is required, no sampling equipment components or sample containers should come into contact with aluminum foil, LDPE, glass, or Teflon tape. Acceptable

equipment includes stainless steel spoons and bowl, HDPE containers, and steel tools that are not coated.

3.2.3 Groundwater Monitoring Well Construction / Completion

3.2.3.1 Artificial Sand Pack

When utilized, granular backfill will be chemically and texturally clean, inert, siliceous, and of appropriate grain size for the screen slot size and the host environment. The sand pack will be installed using a tremie pipe, when possible (i.e., a tremie pipe may not fit into smaller, 2-inch diameter boreholes). When utilized, the well screen and casing will be installed, and the sand pack placed around the screen and casing to a depth extending at least 2 feet above the top of the screen. A pre-packed well screen may be used if pre-approved by the NYSDEC.

3.2.3.2 Bentonite Seal

A minimum 2-foot thick seal will be placed directly on top of the sand pack, and care will be taken to avoid bridging. In the event that Site geology does not allow for a 2-foot seal (e.g., only 1-foot of space remains between the top of the sand pack and ground surface), the remaining space in the annulus will be filled with bentonite.

3.2.3.3 Grout Mixture

Upon completion of the bentonite seal, the well may be grouted with a 30% solids pure bentonite grout, a non-shrinking cement grout, a cement / bentonite grout mix, or a bentonite / soil mix as indicated in the Work Plan. The grout will be placed from the top of the bentonite seal to the ground surface.

3.2.3.4 Surface Protection

At all times during the progress of the work, precautions shall be used to prevent tampering with or the entrance of foreign material into the well. Upon completion of the well, a suitable cap shall be installed to prevent material from entering the well. Where permanent wells are to be installed, the well riser shall be protected by a flush mounted road box set into a concrete pad or locking well cap for stick-up wells. A concrete pad, sloped away from the well, shall be constructed around the flush mount road box or stick-up casing at ground level.

Any well that is to be temporarily removed from service or left incomplete due to delay in construction shall be capped with a watertight cap.

3.2.3.5 Surveying

Coordinates and elevations will be established for each monitoring well and sampling location. Elevations to the closest 0.01 foot shall be used for the survey. These elevations shall be

referenced to a regional, local, or project-specific datum. The location, identification, coordinates, and elevations of the wells will be plotted on maps with a scale large enough to show their location with reference to other structures at each site.

3.2.3.6 Well Development

After completion of the well, but not sooner than 48 hours after grouting is completed, development will be accomplished using pumping, bailing, and / or surge blocking. No dispersing agents, acids, disinfectants, or other additives will be used during development or introduced into the well at any other time. During development, water will be removed throughout the entire water column by periodically lowering and raising the pump intake (or bailer stopping point).

Water elevations will be taken on all wells prior to development, purging, and sampling. All measurements will be taken within a 24-hour period to obtain consistent elevations and recorded on well data sheets. The procedure for measuring water levels in the monitoring wells is:

- Unlock and remove well cap;
- Test the atmosphere of the well with the calibrated PID. If the gases from the well have caused the air in the breathing zone to read greater than 5 ppm, stop work and refer to the HASP;
- Measure water level to nearest 0.01 foot with a water level indicator (electronic);
- Water level indicators will be decontaminated before moving to next well. The tape and cable are decontaminated by washing in a bucket of distilled water-biodegradable phosphate free-detergent solution, followed by a rinse with distilled water.

Development water will either be properly contained and treated as waste until the results of chemical analysis of samples are obtained or discharged on Site as determined by the Site-specific work plans and/or consultation with the NYSDEC representatives on Site.

The development process will continue until removal of a minimum of 110% of the water lost during drilling, three well volumes; whichever is greater (or as specified in the Work Plan), and when water quality monitoring demonstrates stabilization of the effluent. The water quality meter will be calibrated prior to each sampling event (and more often as required by the manufacturer's data), using calibration fluids. Stabilization criteria is shown in the table below. In the event that limited recharge does not allow for the recovery of all drilling water lost in the well or three well volumes, the well will be allowed to stabilize to conditions deemed representative of groundwater conditions. Stabilization periods will vary by project but will be confirmed with the NYSDEC prior to sampling.

Table 3-2: Well Development Stabilization Criteria

Parameter	Units	Stabilization Criteria
pH	Standard Units	± 0.1
Conductivity	mS/cm	± 3%
Turbidity	NTU	10% or < 10 NTU
D.O.	mg/L	10% or < 0.5 mg/L
Temperature	°F / °C	± 3%
ORP	mV	± 10

3.2.3.7 Groundwater Sample Collection

Groundwater samples will be collected using a dedicated low flow pump. When analysis is limited to VOCs, samples may be collected with disposable or stainless steel bailers. When PFAS sampling / testing is required, only the following equipment will be permitted:

- Stainless steel inertia pump with HDPE tubing
- Peristaltic pump with HDPE and silicone tubing
- Stainless steel bailer with stainless steel ball
- Bladder pump (identified as PFAS-free) with HDPE tubing

All sampling equipment will be properly decontaminated in the field (see **Section 3.3**). The following equipment will be available for sampling of monitoring wells in addition to the general sampling equipment list:

- Well Data Sheets
- Pump
- Electronic water level indicator
- Water Quality Meter
- Acid resistant gloves

The following activities will be completed before going into the field every day before the start of sampling:

- Fill out appropriate section on Well Data Sheet for the wells to be sampled;
- Obtain the sampling schedule for each well to be sampled;
- Calibrate the PID with the calibration gas;
- Determine the amount of sampling to be done for the day and prepare the necessary number of coolers;
- Each well to be sampled will have designated coolers containing the pre-labeled, certified clean, sample bottles. The groundwater samples will be placed in the cooler labeled for

the well from which they were taken. The bottle shall be labeled with large distinguishable letters, so that the groundwater samples will be placed in the proper cooler; and

- Select the appropriate sample bottles for the day's sampling. The bottles shall be pre-marked with a sample parameter and preservatives. Reusable glass bottles will have been cleaned and prepared at the laboratory. The bottles for the various parameters to be analyzed from each well location will then be placed in a cooler.

The following steps describe the sample collection of groundwater:

- Unlock and remove the well cap;
- When VOCs are a contaminant of concern, test the air at the wellhead with the calibrated PID. If the gases from the well have caused the air in the breathing zone to read greater than 5 ppm, stop work and refer to the HASP. Record the reading on the Well Data Sheet;
- In order to obtain a representative sample of the formation water, the well must be purged of the static water within the well. Prior to purging, the static water level within the well must be measured and the measurement recorded on the Well Data Sheet. To determine the amount of water necessary to purge, find the liquid column height in the well to determine the total volume (three liquid column borehole volumes) of liquid to be purged;
- Purge the well; lower pump slowly into the well until it is below the water surface. In accordance with the Work Plan, purge waters will either be disposed within the vicinity of the respective well or containerized.
- Record the amount of water purged in the field logbook and on the Well Data Sheet.
- If the well goes dry during pumping, allow for full recovery (measure the water level) and then sample. If recovery takes more than twenty minutes, proceed to next well but return to sample within 24 hours.
- Fill the appropriate sample bottles according to the sampling schedule for each well. While filling the sample bottles, record the well number, type, volume of container, and the preservatives used on the Ground Water Sampling Analyses form.
- The preservatives for the various sampling parameters were previously added to the clean sample bottles by the laboratory. Some parameters may require additional special handling.
- Volatile organics analyses sample vials must be free of air bubbles. When a bubble-free sample has been obtained, it must be immediately chilled.
- Collect the matrix spike duplicates, duplicates, field blanks, and trip blanks, as applicable. Take samples according to sampling schedule presented in the Work Plan.

- Record all pertinent information in field logbook and on the Well Data Sheet (include color, odor, sediment content of sample, etc.). Any situations at the site that have the potential to interfere with the analytical results should also be recorded here.
- Lock well, inspect well site, and note any maintenance required.
- Dispose of potentially contaminated materials in designated container.

3.2.4 Air Sample Collection

3.2.4.1 Indoor Air Sampling

Indoor air samples will be collected using a Summa™ canister (6-Liter capacity) equipped with a critical orifice flow regulation device sized to allow an air sample to be collected over a 24-hour sampling period. Care is taken to deploy the canisters away from the direct influence of any forced air emanating from air conditioning units, central air conditioning vents, furnaces or heaters. The indoor air sampling procedure is as follows:

- Building spaces are examined to determine a location for deploying the sample. The canister is deployed in areas not subject to disturbances and which will not interfere with the occupant's normal activities.
- Building occupants are requested to keep out of the sampling area during the sampling event.
- Air sample canisters are labeled with a unique sample designation number. The sample number and location is recorded in the field log book.
- The canister vacuum is measured using an integrated vacuum gauge immediately prior to canister deployment, and recorded in the field log book. The critical orifice flow controller is installed, as supplied by the laboratory, on the canister, the canister is opened fully at the beginning of sample collection period, and the start time is recorded.
- The canister valve is closed fully at the end of the sample period by disconnecting the regulator from the canister (after 24-hours) and the end time recorded. Any evidence of canister disturbance during the sample collection will be recorded.
- The canister vacuum is measured and recorded immediately after canister retrieval at the end of the sample period. Once the vacuum is measured, the canisters are returned to their sampling boxes for safe storage and shipping. Field data is verified as correctly entered into field books prior to shipment; and canisters are shipped to the laboratory under a chain-of-custody.

3.2.4.2 Sub-Slab Soil Gas Sampling

Sub-slab sampling points are installed to collect soil gas immediately below the slab. Sub-slab gas samples are collected using a 6-Liter Summa™ canister fitted with a flow orifice pre-calibrated to collect a 6-Liter sample over a 24-hour period. Once the 24-hour sampling period has been completed, the canister is boxed and shipped to the laboratory for analysis. A brief summary of the sampling protocol is provided below. The sub-slab vapor points are installed by first advancing a small diameter hole (approximately 3/8-inches in diameter) through the floor slab to determine thickness. The holes are drilled via a hammer drill or concrete core. The hole extends through the slab and terminates at the interface with underlying material (i.e. gravel base or soil). A sample point consisting of a length of tubing is placed into the boring. The cored slab annulus is filled with clay placed around the sub-slab vapor point. The bottom of the sub-slab vapor point extends to the bottom of slab. Prior to sub-slab soil gas sample collection, the monitoring point and above grade tubing is purged at a rate not exceeding 200 ml/min. The total volume purged prior to sample collection equals three volumes of air in the open space of tubing and the sample point. At the end of the sampling event, a pressure gauge reading is recorded. The 1-Liter canister with a calibrated 24-hour orifice is connected to the tubing. The following summarizes the above:

- The sub-slab sampling point construction is temporary, with the sampling points securely mounted through the concrete slab and grouted in place using pottery clay.
- Prior to sub-slab soil gas sample collection, the monitoring point and above grade tubing is purged at a rate not exceeding 200 ml/min.
- Samples are collected over a 24-hour period at a flow rate not greater than 200 mL/min.
- Helium is used as a field tracer during sampling. The Helium is introduced into a dome next to the above grade sampling train and Summa™ canister. The helium is read using a helium meter that is capable to read down to 1-2%.
- Field documentation is maintained in a field notebook and on field data forms.

3.2.4.3 Ambient Air Sampling

Ambient air samples are collected in the same manner as the indoor air samples

3.3 General Decontamination

The following procedures will be performed for the decontamination of exploration equipment, sampling equipment, and personnel after each drilling/sampling event:

- Drill rig, backhoe, and excavator – The drill rig, direct-push rig, backhoe, and/or excavator will be cleaned prior to their entrance and exit of the site. Greases and oils will not be used on any down hole equipment during drilling or exploration activities.

- Exploration equipment – To avoid cross contamination, use of a PID meter and cleaning between each sampling site will be employed on backhoe arms, buckets, hollow stem augers, casing drill rods, down-hole tools, and appurtenant equipment.
- Split spoon sampler – The split spoon sampler will be scrubbed, cleaned, and put through a series of rinses between each sampling event. A number of split spoon samplers will be used so that one can be utilized for sampling while the others are being cleaned.
- Reusable equipment – The following steps will be employed to decontaminate reusable equipment:
 - Rinse equipment of soil or foreign material with potable water;
 - Immerse and scrub equipment with bio-degradable phosphate-free detergent and potable water;
 - Immerse and scrub in a potable water rinse without detergent;
 - Immerse and scrub in deionized/distilled water;
 - Saturate by spraying or immersion in laboratory-grade hexane;
 - Air dry and wrap cleaned equipment in foil to carry to next monitoring site to prevent contamination of equipment during transfer; and
 - The decontamination wash and rinse water will not be considered hazardous unless visual inspection or monitoring by the PID and other equipment indicate that contaminants may be present. The rinse waters can be discharged on-site if they are not contaminated. If contaminants are expected to be present, the rinsate waters should be placed in 55 gallon drums and stored on-site.
- Disposable equipment – The following steps will be employed to decontaminate disposable equipment:
 - Rinse with potable water;
 - Remove all standing liquid from the piece of equipment;
 - Dispose of the equipment in a dedicated container for contaminated solids; and
 - Dispose of rinse water in 55 gallon drums if contaminants are found to be present.
- Sample containers – Upon filling and capping sample bottles, the outside of the bottle will be wiped off with a clean paper towel. These towels will be disposed of in a dedicated container for contaminated solids.
- Personnel decontamination – The following procedures will be used to decontaminate sampling personnel.
 - After each sampling event chemical resistant gloves will be disposed of in a dedicated container for contaminated solids;
 - At the end of each sampling day, Tyvek™ coveralls will be disposed of in a dedicated container for contaminated solids;
 - Boots will be rinsed off with water to remove mud, clay, or any other contaminants; and
 - Personnel will be required to follow procedures outlined in the HASP.

- Special Considerations for PFAS – The following procedures will be used when sampling for PFAS.
 - Clothing that contains PTFE material, including Gore-Tex or that have been water-proofed with PFAS materials should be avoided. All clothing worn by sampling personnel should first be laundered multiple times. Acceptable rain gear includes PVC, polyurethane, or rubber. If such materials are required because site conditions warrant additional protection for samplers, their use will be documented in the field notes.
 - Decontamination water shall be verified in advance to be PFAS-free through laboratory analysis or certification. Previous results of non-detect for PFAS are acceptable.

4.0 SAMPLE MANAGEMENT PLAN

4.1 Sample Management

This Sample Management Plan provides procedures to document and track samples and results obtained during this work effort. A series of pre-printed forms with the appropriate information serves as a vehicle for documentation and tracking.

In order to accomplish this task, the documentation materials will include sample labels, sample characterization and Chain-of-Custody sheets, daily field reports, and a sample log.

- Sample Label – A sample label will be completed for each sample obtained and will be affixed to the sample container. The label is configured in a way to address various types of mediums. Information on the label includes, at a minimum, client name, location, sample description, sample number, date, time, grab sample, composite sample, notes, and sampler's name.
- Sample Characterization & Chain-of-Custody Sheet – All pertinent field information will be entered onto the sample characterization and chain-of-custody sheets including client name, sample ID, sample description, location of sample, sampling method, number of containers, container type, analysis required, and preservation. The monitoring well form has space allotted for entering information regarding the well including depth to water, well volume, sample pH, temperature, color, etc. The Chain-of-Custody section of the form will document the sample's pathway of sample shipment which will include names of persons delivering/receiving, dates, and times. The reverse side of this form will be used by the laboratory to document analysis performed on the sample. Copies of the completed forms will be retained by the Engineer and the analytical laboratory. The original sample characterization and Chain-of-Custody sheets will be submitted in the Remedial Investigation report along with the laboratory results.
- Daily Field Reports – Daily activities will be recorded on the Inspection Report form. The purpose of this form will be to summarize the work performed on the site each day. The completed forms will be submitted to the Project Manager on a daily basis for short term site activity and on a weekly basis for site activities of a longer duration.
- Sample Log – The sample log will be utilized to track each individual sample obtained at the site. The upper portion, "Field Identification" will be completed the day the sample is taken. The form will accompany the sample characterization and Chain-of-Custody form to the laboratory. Personnel at the laboratory will complete the middle section of this form and return it to the Engineer, who will use the document to track incoming results. The bottom of the sheet has space allocated to enter "Recommended Actions" based on laboratory results.

4.2 Sample Handling

Each collected sample will be dispensed into the appropriate sample containers for the type of analysis to be performed. Sampling staff will wear nitrile gloves at all times when handling samples. Appropriate sample preservatives will be added to the sample containers by the contracted analytical laboratory prior to the delivery into the field, except in cases where the sample preservative must be added after sample collection. All samples that require cool storage will be immediately placed in coolers with appropriate packaging materials so as to protect the breakage of sample containers during shipment. The sample coolers will be filled with cubed ice (no "Blue Ice") prior to leaving the sample collection location. In the instance that a local analytical laboratory is contracted, the samples will be hand delivered to the laboratory each sampling day. The chain-of-custody forms will be signed by the laboratory personnel picking up the samples and placed within the coolers. In the instance that an analytical laboratory is contracted which is not based locally and a common carrier is used for sample shipment, the chain-of-custody forms will be signed by the sampler and the carrier personnel and placed inside of the coolers. Careful packaging techniques will be used to prevent sample containers from breakage during shipment. Materials such as cardboard, foam wrap, or Styrofoam may be used as packaging materials. All samples will be delivered to the contracted analytical laboratory on the day they were collected and will be received by the laboratory within 24 hours of sample collection. The samples will be collected with sufficient time allowed at the end of the day for the analytical laboratory to properly process the sample chain-of-custody.

Appendix A

Supporting Documentation for PFAS Analysis

Method 1633 Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids and Tissue Samples by LC-MS/MS

References: Method 1633 - Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS (2nd Draft - June 2022)

DOD QSM (US Department of Defense Quality Systems Manual for Environmental Laboratories, version 5.4, 20221)

1. Scope and Application

Matrices: Drinking water, Non-potable Water, Tissues, Biosolids and Soil Matrices

Definitions: Refer to Alpha Analytical Quality Manual.

- 1.1** Method 1633 is for use in the Clean Water Act (CWA) for the determination of the per- and polyfluoroalkyl substances (PFAS) in Table 1 in aqueous, solid (soil, biosolids, sediment) and tissue samples by liquid chromatography/mass spectrometry (LC-MS/MS).
- 1.2** The method calibrates and quantifies PFAS analytes using isotopically labeled standards. Where linear and branched isomers are present in the sample and either qualitative or quantitative standards containing branched and linear isomers are commercially available, the PFAS analyte is reported as a single analyte consisting of the sum of the linear and branched isomer concentrations
- 1.3** This is a liquid chromatography/tandem mass spectrometry (LC/MS/MS) method for the determination of selected perfluorinated alkyl substances (PFAS) in Non-Drinking Water, tissue soil and biosolid Matrices. Accuracy and precision data have been generated for the compounds listed in Table 1.
- 1.4** The data report packages present the documentation of any method modification related to the samples tested. Depending upon the nature of the modification and the extent of intended use, the laboratory may be required to demonstrate that the modifications will produce equivalent results for the matrix. Approval of all method modifications is by one or more of the following laboratory personnel before performing the modification: Area Supervisor, Department Supervisor, Laboratory Director, or Quality Assurance Officer.
- 1.5** This method is restricted to use by or under the supervision of analysts experienced in the operation of the LC/MS/MS and in the interpretation of LC/MS/MS data. Each analyst must demonstrate the ability to generate acceptable results with this method by performing an initial demonstration of capability.

2. Summary of Method

- 2.1** Environmental samples are prepared and extracted using method-specific procedures. Sample extracts are subjected to cleanup procedures designed to remove interferences. Analyses of the sample extracts are conducted by LC-MS/MS in the multiple reaction monitoring (MRM) mode. Sample concentrations are determined by isotope dilution or

extracted internal standard quantification using isotopically labeled compounds added to the samples before extraction.

- 2.2 Aqueous samples are spiked with isotopically labeled standards, extracted using solid-phase extraction (SPE) cartridges and undergo cleanup using carbon before analysis.
- 2.3 Solid samples are spiked with isotopically labeled standards, extracted into basic methanol, and cleaned up by carbon and SPE cartridges before analysis
- 2.4 Tissue samples are spiked with isotopically labeled standards, extracted in potassium hydroxide and acetonitrile followed by basic methanol, and cleaned up by carbon and SPE cartridges before analysis.
- 2.5 A sample extract is injected into an LC equipped with a C18 column that is interfaced to an MS/MS). The analytes are separated and identified by comparing the acquired mass spectra and retention times to reference spectra and retention times for calibration standards acquired under identical LC/MS/MS conditions. The concentration of each analyte is determined by using the isotope dilution technique. Extracted Internal Standards (EIS) analytes are used to monitor the extraction efficiency of the method analytes.

2.6 Method Modifications from Reference

N/A

3. Reporting Limits

The reporting limit for PFAS's are listed in Table 8.

4. Interferences

- 4.1 PFAS standards, extracts and samples should not come in contact with any glass containers or pipettes as these analytes can potentially adsorb to glass surfaces. PFAS analyte and EIS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers.
- 4.2 Method interferences may be caused by contaminants in solvents, reagents (including reagent water), sample bottles and caps, and other sample processing hardware that lead to discrete artifacts and/or elevated baselines in the chromatograms. The method analytes in this method can also be found in many common laboratory supplies and equipment, such as PTFE (polytetrafluoroethylene) products, LC solvent lines, methanol, aluminum foil, SPE sample transfer lines, etc. All items such as these must be routinely demonstrated to be free from interferences (less than 1/2 the RL for each method analyte) under the conditions of the analysis by analyzing laboratory reagent blanks as described in Section 9.1. Subtracting blank values from sample results is not permitted.
- 4.3 Matrix interferences may be caused by contaminants that are co-extracted from the sample. The extent of matrix interferences will vary considerably from source to source, depending upon the nature of the water. Humic and/or fulvic material can be co-extracted during SPE and high levels can cause enhancement and/or suppression in the electrospray ionization

source or low recoveries on the SPE sorbent. Total organic carbon (TOC) is a good indicator of humic content of the sample.

- 4.4** SPE cartridges can be a source of interferences. The analysis of field and laboratory reagent blanks can provide important information regarding the presence or absence of such interferences. Brands and lots of SPE devices should be tested to ensure that contamination does not preclude analyte identification and quantitation.

5. Health and Safety

- 5.1** The toxicity or carcinogenicity of each reagent and standard used in this method is not fully established; however, each chemical compound should be treated as a potential health hazard. From this viewpoint, exposure to these chemicals must be reduced to the lowest possible level by whatever means available. A reference file of material safety data sheets is available to all personnel involved in the chemical analysis. Additional references to laboratory safety are available in the Chemical Hygiene Plan.
- 5.2** All personnel handling environmental samples known to contain or to have been in contact with municipal waste must follow safety practices for handling known disease causative agents.
- 5.3** PFOA has been described as “likely to be carcinogenic to humans.” Pure standard materials and stock standard solutions of these method analytes should be handled with suitable protection to skin and eyes, and care should be taken not to breathe the vapors or ingest the materials.

6. Sample Collection, Preservation, Shipping and Handling

6.1 Sample Collection for Aqueous Samples

- 6.1.1** Samples must be collected in two (2) 500-mL or 250-mL high density polyethylene (HDPE) container with an unlined plastic screw cap. All sample containers must have linerless HDPE or polypropylene caps.
- 6.1.2** The sample handler must wash their hands before sampling and wear nitrile gloves while filling and sealing the sample bottles. PFAS contamination during sampling can occur from a number of common sources, such as food packaging and certain foods and beverages. Proper hand washing and wearing nitrile gloves will aid in minimizing this type of accidental contamination of the samples.
- 6.1.3** Open the tap and allow the system to flush until the water temperature has stabilized (approximately 3 to 5 min). Collect samples from the flowing system.
- 6.1.4** Fill sample bottles. Samples do not need to be collected headspace free.
- 6.1.5** After collecting the sample and cap the bottle. Keep the sample sealed from time of collection until extraction.
- 6.1.6** Maintain all aqueous samples protected from light at 0 - 6 °C from the time of collection until shipped to the laboratory. Samples must be shipped as soon as practical with sufficient ice to maintain the sample temperature below 6 °C during transport and be received by the laboratory within 48 hours of collection. The laboratory must confirm that the sample temperature is 0 - 6 °C upon receipt.

Once received by the laboratory, the samples must be stored at ≤ -20 °C until sample preparation.

6.2 Sample Collection for Soil and Sediment samples.

- 6.2.1 Grab samples are collected in polypropylene containers. Sample containers and contact surfaces containing PTFE shall be avoided. Samples should fill no more than $\frac{3}{4}$ full.
- 6.2.2 Maintain solid samples protected from light (in HDPE containers) at 0 - 6 °C from the time of collection until receipt at the laboratory. The laboratory must confirm that the sample temperature is 0 - 6 °C upon receipt. Once received by the laboratory, the samples must be stored at ≤ -20 °C until sample preparation.

6.3 Sample Collection for fish and other tissue samples

- 6.3.1 If the time of collection to the time of receipt at the laboratory is expected to exceed 24 hours, the tissue samples must be frozen upon collection and shipped to the laboratory on dry ice.
- 6.3.2 Once received by the laboratory, the samples must be maintained protected from light at ≤ -20 °C until prepared. Store unused samples in HDPE containers or wrapped in aluminum foil at ≤ -20 °C.
- 6.3.3 The nature of the tissues of interest may vary by project. Field sampling plans and protocols should explicitly state the samples to be collected and if any processing will be conducted in the field (e.g., filleting of whole fish or removal of organs). All field procedures must involve materials and equipment that have been shown to be free of PFAS.

6.4 Sample Preservation

Not applicable.

6.5 Sample Shipping

Samples must be chilled during shipment and must not exceed 0 – 6 °C during the first 48 hours after collection. Sample temperature must be confirmed to be at or below 0 – 6 °C when the samples are received at the laboratory. Samples stored in the lab must be held at or below 6 °C until extraction but should not be frozen.

NOTE: Samples that are significantly above 0 – 6 °C, at the time of collection, may need to be iced or refrigerated for a period of time, in order to chill them prior to shipping. This will allow them to be shipped with sufficient ice to meet the above requirements.

6.6 Sample Handling

- 6.6.1 Aqueous samples (including leachates) should be analyzed as soon as possible; however, samples may be held in the laboratory for up to 90 days from collection, when stored at ≤ -20 °C and protected from the light. When stored at 0 - 6 °C and protected from the light, aqueous samples may be held for up to 28 days, with the caveat that issues were observed with certain perfluorooctane sulfonamide ethanols and perfluorooctane sulfonamidoacetic acids after 7 days. These issues are more likely to elevate the observed concentrations of other PFAS compounds via the transformation of these precursors if they are present in the sample.

- 6.6.2** Solid samples (soils and sediments) and tissue samples may be held for up to 90 days, if stored by the laboratory in the dark at either 0 - 6 °C or ≤ -20 °C, with the caveat that samples may need to be extracted as soon as possible if NFDHA is an important analyte.
- 6.6.3** Biosolids samples may be held for up to 90 days, if stored by the laboratory in the dark at 0 - 6 °C or at -20 °C. Because microbiological activity in biosolids samples at 0 - 6 °C may lead to production of gases which may cause the sample to be expelled from the container when it is opened, as well as producing noxious odors, EPA recommends that samples be frozen if they need to be stored for more than a few days before extraction. Store sample extracts in the dark at less than 0 - 4 °C until analyzed. If stored in the dark at less than 0 - 4 °C, sample extracts may be stored for up to 90 days, with the caveat that issues were observed for some ether sulfonates after 28 days. These issues may elevate the observed concentrations of the ether sulfonates in the extract over time. Samples may need to be extracted as soon as possible if NFDHA is an important analyte.

7. Equipment and Supplies

- 7.1** SAMPLE CONTAINERS – 500-mL or 250-mL high density polyethylene (HDPE) bottles fitted with unlined screw caps. Sample bottles must be discarded after use.
- 7.2** SAMPLE JARS – 8-ounce wide mouth high density polyethylene (HDPE) bottles fitted with unlined screw caps. Sample bottles must be discarded after use.
- 7.3** POLYPROPYLENE BOTTLES – 4-mL narrow-mouth polypropylene bottles.
- 7.4** CENTRIFUGE TUBES – 50-mL conical polypropylene tubes with polypropylene screw caps for storing standard solutions and for collection of the extracts.
- 7.5** AUTOSAMPLER VIALS – Polypropylene 0.7-mL autosampler vials with polypropylene caps.
- 7.5.1** NOTE: Polypropylene vials and caps are necessary to prevent contamination of the sample from PTFE coated septa. However, polypropylene caps do not reseal, so evaporation occurs after injection. Thus, multiple injections from the same vial are not possible.
- 7.6** POLYPROPYLENE GRADUATED CYLINDERS – Suggested sizes include 25, 50, 100 and 1000-mL cylinders.
- 7.7** Auto Pipets – Suggested sizes include 5, 10, 25, 50, 100, 250, 500, 1000, 5000 and 10,000-µLs.
- 7.8** PLASTIC PIPETS – Polypropylene or polyethylene disposable pipets.
- 7.9** Silanized glass wool (Sigma-Aldrich, Cat # 20411 or equivalent) – store in a clean glass jar and rinsed with methanol (2 times) prior to use.
- 7.10** Disposable syringe filter, 25-mm, 0.2-µm Nylon membrane, PALL/Acrodisc or equivalent
- 7.11** Variable volume pipettes with disposable HDPE or polypropylene tips (10 µL to 5 mL) used for preparation of calibration standards and spiked samples.
- 7.12** ANALYTICAL BALANCE – Capable of weighing to the nearest 0.0001 g.

7.13 ANALYTICAL BALANCE – Capable of weighing to the nearest 0.1 g.

7.14 SOLID PHASE EXTRACTION (SPE) APPARATUS FOR USING CARTRIDGES

7.14.1 SPE CARTRIDGES – (Waters Oasis WAX 150 mg, Cat # 186002493 or equivalent). The SPE sorbent must have a pKa above 8 so that it remains positively charged during the extraction.

7.14.1.1 Note: SPE cartridges with different bed volume (e.g., 500 mg) may be used; however, the laboratory must demonstrate that the bed volume does not negatively affect analyte absorption and elution, by performing the initial demonstration of capability analyses described in Section 13.

7.14.2 VACUUM EXTRACTION MANIFOLD – A manual vacuum manifold with large volume sampler for cartridge extractions, or an automatic/robotic sample preparation system designed for use with SPE cartridges, may be used if all QC requirements discussed in Section 9 are met. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. Care must be taken with automated SPE systems to ensure the PTFE commonly used in these systems does not contribute to unacceptable analyte concentrations in the MB.

7.14.3 SAMPLE DELIVERY SYSTEM – Use of a polypropylene transfer tube system, which transfers the sample directly from the sample container to the SPE cartridge, is recommended, but not mandatory. Standard extraction manifolds come equipped with PTFE transfer tube systems. These can be replaced with 1/8" O.D. x 1/16" I.D. polypropylene or polyethylene tubing cut to an appropriate length to ensure no sample contamination from the sample transfer lines. Other types of non-PTFE tubing may be used provided it meets the MB and LCS QC requirements.

7.15 EXTRACT CONCENTRATION SYSTEM – Extracts are concentrated by evaporation with nitrogen using a water bath set no higher than 55 °C.

7.16 LABORATORY OR ASPIRATOR VACUUM SYSTEM – Sufficient capacity to maintain a vacuum of approximately 10 to 15 inches of mercury for extraction cartridges.

7.17 LIQUID CHROMATOGRAPHY (LC)/TANDEM MASS SPECTROMETER (MS/MS) WITH DATA SYSTEM

7.17.1 LC SYSTEM – Instrument capable of reproducibly injecting up to 10-μL aliquots and performing binary linear gradients at a constant flow rate near the flow rate used for development of this method (0.4 mL/min). The LC must be capable of pumping the water/methanol mobile phase without the use of a degasser which pulls vacuum on the mobile phase bottle (other types of degassers are acceptable). Degassers which pull vacuum on the mobile phase bottle will volatilize the ammonium acetate mobile phase causing the analyte peaks to shift to earlier retention times over the course of the analysis batch. The usage of a column heater is optional.

7.17.2 LC/TANDEM MASS SPECTROMETER – The LC/MS/MS must be capable of negative ion electrospray ionization (ESI) near the suggested LC flow rate of 0.4 mL/min. The system must be capable of performing MS/MS to produce unique product ions for the method analytes within specified retention time segments. A minimum of 10 scans across the chromatographic peak is required to ensure adequate precision.

7.17.3 DATA SYSTEM – An interfaced data system is required to acquire, store, reduce, and output mass spectral data. The computer software should have the capability of processing stored LC/MS/MS data by recognizing an LC peak within any given retention time window. The software must allow integration of the ion abundance of any specific ion within specified time or scan number limits. The software must be able to calculate relative response factors, construct linear regressions or quadratic calibration curves, and calculate analyte concentrations.

7.17.4 INSTRUMENT COLUMNS

7.17.4.1 ANALYTICAL: C18 column, 1.7 μ m, 50 x 2.1 mm (Waters Acquity UPLC® BEH or equivalent)

7.17.4.2 OPTIONAL GUARD COLUMN: (Phenomenex Kinetex® Evo C18 or equivalent)

8. Reagents and Standards

8.1 GASES, REAGENTS, AND SOLVENTS – Reagent grade or better chemicals must be used.

8.1.1 REAGENT WATER – Purified water which does not contain any measurable quantities of any method analytes or interfering compounds greater than 1/2 the RL for each method analyte of interest. Prior to daily use, at least 3 L of reagent water should be flushed from the purification system to rinse out any build-up of analytes in the system's tubing.

8.1.2 METHANOL (CH₃OH, CAS#: 67-56-1) – High purity, demonstrated to be free of analytes and interferences.

8.1.3 AMMONIUM ACETATE (NH₄C₂H₃O₂, CAS#: 631-61-8) – High purity, demonstrated to be free of analytes and interferences. Store at 2-8° and replace 2 years after opening date.

8.1.4 ACETIC ACID (H₃CCOOH, CAS#: 64-19-7) - High purity, demonstrated to be free of analytes and interferences and stored at room temperature.

8.1.4.1 Acetic Acid (0.1%) – Dissolve acetic acid (1 mL) in reagent water (1 L), store at room temperature, replace after 3 months.

8.1.5 1M AMMONIUM ACETATE/REAGENT WATER – High purity, demonstrated to be free of analytes and interferences.

8.1.6 2mM AMMONIUM ACETATE/METHANOL:WATER (5:95) – To prepare, mix 2 ml of 1M AMMONIUM ACETATE, 1 ml ACETIC ACID and 50 ml METHANOL into 1 Liter of REAGENT WATER.

8.1.7 ACETONITRILE – UPLC grade or equivalent, store at room temperature

8.1.8 TOLUENE – HPLC grade or equivalent.

8.1.9 ACETONE – pesticide grade or equivalent

8.1.10 AMMONIUM HYDROXIDE (NH₃, CAS#: 1336-21-6) – High purity, demonstrated to be free of analytes and interferences, and stored at room temperature.

- 8.1.11** AQUEOUS AMMONIUM HYDROXIDE (3%) – Add ammonium hydroxide (10 mL, 30%) to reagent water (90 mL), store at room temperature, replace after 3 months.
- 8.1.12** METHANOLIC AMMONIUM HYDROXIDE (0.3%) - add ammonium hydroxide (1 mL, 30%) to methanol (99 mL), store at room temperature, replace after 1 month
- 8.1.13** METHANOLIC AMMONIUM HYDROXIDE (1%) - add ammonium hydroxide (3.3 mL, 30%) to methanol (97 mL), store at room temperature, replace after 1 month
- 8.1.14** METHANOLIC AMMONIUM HYDROXIDE (2%) - add ammonium hydroxide (6.6 mL, 30%) to methanol (93.4 mL), store at room temperature, replace after 1 month
- 8.1.15** METHANOLIC POTASSIUM HYDROXIDE (0.05 M) – add 3.3 g of potassium hydroxide to 1 L of methanol, store at room temperature, replace after 3 months
- 8.1.16** METHANOL WITH 4% WATER, 1% AMMONIUM HYDROXIDE AND 0.625% ACETIC ACID - add ammonium hydroxide (3.3 mL, 30%), reagent water (1.7 mL) and acetic acid (0.625 mL) to methanol (92 mL), store at room temperature, replace after 1 month. This solution is used to prepare the instrument blank and calibration standards (Section 8.3.2).
- 8.1.17** FORMIC ACID – (greater than 96% purity or equivalent). Store at room temperature and replace after 2 years.
- 8.1.18** FORMIC ACID (aqueous, 0.1 M) - dissolve formic acid (4.6 g) in reagent water (1 L), store at room temperature, replace after 2 years.
- 8.1.19** FORMIC ACID (aqueous, 0.3 M) - dissolve formic acid (13.8 g) in reagent water (1 L), store at room temperature, replace after 2 years.
- 8.1.20** FORMIC ACID (aqueous, 5% v/v) - mix 5 mL formic acid with 95 mL reagent water, store at room temperature, replace after 2 years.
- 8.1.21** FORMIC ACID (methanolic 1:1, 0.1 M formic acid/methanol) - mix equal volumes of methanol and 0.1 M formic acid, store at room temperature, replace after 2 years.
- 8.1.22** FORMIC ACID (aqueous, 50% v/v) - mix 50 mL formic acid with 50 mL reagent water, store at room temperature, replace after 2 years.
- 8.1.23** POTASSIUM HYDROXIDE – certified ACS or equivalent, store at room temperature, replace after 2 years.
- 8.1.24** CARBON - – EnviCarb® 1-M-USP or equivalent, verified by lot number before use, stored at room temperature. Loose carbon allows for better adsorption of interferent organics. Note: The single-laboratory validation laboratory achieved better performance with loose carbon than carbon cartridges. Loose carbon will be used for the multi-laboratory validation to set statistically based method criteria.

- 8.1.25** NITROGEN – Used for the following purposes: Nitrogen aids in aerosol generation of the ESI liquid spray and is used as collision gas in some MS/MS instruments. The nitrogen used should meet or exceed instrument manufacturer's specifications. In addition, Nitrogen is used to concentrate sample extracts (Ultra High Purity or equivalent).
- 8.1.26** ARGON – Used as collision gas in some MS/MS instruments. Argon should meet or exceed instrument manufacturer's specifications. Nitrogen gas may be used as the collision gas provided sufficient sensitivity (product ion formation) is achieved.
- 8.2** REFERENCE MATRICES - Matrices in which PFAS and interfering compounds are not detected by this method. These matrices are to be used to prepare the batch QC samples, LOQ/MDL, and IDOC samples.
- 8.2.1** Reagent water - purified water, Type I
- 8.2.2** Solid reference matrix Ottawa Sand or equivalent
- 8.2.3** Tissue Reference matrix – Cod loin or other animal tissue demonstrated to be PFAS free.
- 8.3** STANDARD SOLUTIONS – When a compound purity is assayed to be 96% or greater, the weight can be used without correction to calculate the concentration of the stock standard. PFAS analyte and IS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers and are stored at ≤ 4 °C. Standards for sample fortification generally should be prepared in the smallest volume that can be accurately measured to minimize the addition of excess organic solvent to aqueous samples.
- 8.3.1** Stock standards and diluted stock standards are stored at ≤ 4 °C. Prepare a spiking solution, containing the method analytes listed in Table 1, in methanol from prime stocks. The solution is used to prepare the calibration standards and to spike the known reference QC samples that are analyzed with every batch. Quantitative standards containing a mixture of branched and linear isomers must be used for method analytes if they are commercially available. Currently, these include PFOS, PFHxS, NEtFOSAA, and NMeFOSAA.
- 8.3.2** Calibration standard solutions – A series of calibration solutions containing the target analytes and the Labeled extracted internal standards (EIS) and non-extracted internal standards (NIS) is used to establish the initial calibration of the analytical instrument. Table 4 represents the concentrations of the native, EIS and NIS analytes of the calibration curve. Calibration standard solutions are made using the solution described in section 8.1.16.
- 8.3.3** ISOTOPE DILUTION EXTRACTED INTERNAL STANDARD (EIS) – Isotopically labelled analogs of the target analytes to be used for the quantification of target analytes. EIS stock standard solutions are purchased in glass ampoules and are stored in accordance with the manufacturer's recommendations. The EIS stock solution to be used for the fortification of samples and QC in accordance with the isotope dilution procedure. Table 2 represents the EIS concentrations and nominal sample amounts added to each field sample and QC element.

- 8.3.4 ISOTOPE DILUTION NON-EXTRACTED INTERNAL STANDARDS (NIS) – Isotopically labelled analogs to be added post extraction for the measurement of EIS extraction efficiency and is added to the final volume of all extractions. Table 3 represents the EIS concentrations and nominal sample amounts added to each field sample and QC element.

9. Quality Control

9.1 Method Blank

- 9.1.1 A Method Blank (MB) is required with each extraction batch to confirm that potential background contaminants are not interfering with the identification or quantitation of method analytes. An aliquot of reagent water that is treated exactly as a sample including exposure to all glassware, equipment, solvents, reagents and standards. Prep and analyze a MB for every 20 samples. If the MB produces a peak within the retention time window of any analyte that would prevent the determination of that analyte, determine the source of contamination, and eliminate the interference before processing samples. Background contamination must be reduced to an acceptable level before proceeding. Background from method analytes or other contaminants that interfere with the measurement of method analytes must be below the RL. If the method analytes are detected in the MB at concentrations equal to or greater than this level, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch.

9.2 Laboratory Control Sample (LCS)

- 9.2.1 Low Level LCS or OPR (Ongoing Precision Recovery) sample is required with each extraction batch. A LLCS or OPR samples is a method blank spiked with known quantities of analytes. The fortified concentration of the LCS is spiked at 2X the LOQ. Default limits of 70-130% of the true value may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. Calculate the percent recovery (%R) for each analyte using the equation:
- 9.2.2 An LCS or OPR (Ongoing Precision Recovery) sample is required with each extraction batch. A LCS or OPR samples is a method blank spiked with known quantities of analytes. The fortified concentration of the LCS is spiked at the midpoint of the calibration curve. Default limits of 70-130% of the true value may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. Calculate the percent recovery (%R) for each analyte using the equation:

$$\%R = \frac{A \times 100}{B}$$

Where:

A = measured concentration in the fortified sample
B = fortification concentration.

- 9.1.1 Where applicable, in the absence of additional sample volume required to perform matrix specific QC, LCSD's are to be extracted and analyzed. The concentration and analyte

recovery criteria for the LCSD must be the same as the batch LCS. The RSD's must fall within $\leq 30\%$ of the true value for medium and high-level replicates, and $\leq 50\%$ for low level replicates. Calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation:

$$RPD = \frac{|LCS - LCSD|}{(LCS + LCSD) / 2} \times 100$$

- 9.1.2 If the LCS and or LCSD results do not meet these criteria for method analytes, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch.

9.3 Non-extracted Internal Standard Area (NIS)

Each time an initial calibration is performed, use the data from all the initial calibration standards used to meet the linearity test in Section 10.3.3.3 to calculate the mean area response for each of the NIS compounds, using the equation below.

$$\text{Mean Area}_{\text{NISi}} = \sum \text{Area}_{\text{NISi}} / n$$

where:

Area_{NISi} = Area counts for the *i*th NIS, where *i* ranges from 1 to 7, for the seven NIS compounds listed in Table 1

n = The number of ICAL standards (the default value is *n* = 6). If a different number of standards is used for the ICAL, for example, to increase the calibration range or by dropping a point at either end of the range to meet the linearity criterion, change 6 to match the actual number of standards used)

Record the mean areas for each NIS for use in evaluating results for sample analyses. There is no acceptance criterion associated with the mean NIS area data.

9.4 Extracted Internal Standards (EIS)

- 9.4.1 The EIS standard is fortified into all samples, CCVs, MBs, LCSs, MSs, MSDs, FD, and FRB prior to extraction. It is also added to the CAL standards. The EIS is a means of assessing method performance from extraction to final chromatographic measurement. Calculate the recovery (%R) for the EIS using the following equation:

$$\%R = (A / B) \times 100$$

Where:

A = calculated EIS concentration for the QC or Field Sample
B = fortified concentration of the EIS.

- 9.4.2 Default limits of 50-150% may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. A low or high percent recovery for a sample, blank, or CCV does not require discarding the analytical data but it may indicate a potential problem with future analytical data. When EIS recovery from a sample, blank, or CCV are outside control limits, check 1) calculations to locate possible errors, 2) standard solutions for degradation, 3) contamination, and 4)

instrument performance. For CCVs and QC elements spiked with all target analytes, if the recovery of the corresponding target analytes meet the acceptance criteria for the EIS in question, the data can be used but all potential biases in the recovery of the EIS must be documented in the sample report. If the associated target analytes do not meet the acceptance criteria, the data must be reanalyzed.

9.5 Matrix Spike (MS/MSD)

- 9.5.1 Analysis of an MS is prepared one per preparation batch (if required).
- 9.5.2 Aliquots of field samples that have been fortified with a known concentration of target compounds, prior to sample preparation and extraction, and analyzed to measure the effect of matrix interferences. The use of MS/MSD samples is generally not required in isotope dilution methods because the labeled compounds added to every sample provide more performance data than spiking a single sample in each preparation batch. Aliquots of field samples
- 9.5.3 Analyte recoveries may exhibit matrix bias. For samples fortified at or above their native concentration, recoveries should range between 50-150%. If the accuracy of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCS, the recovery is judged to be matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.6 Laboratory Duplicate

- 9.6.1 FIELD DUPLICATE OR LABORATORY FORTIFIED SAMPLE MATRIX DUPLICATE (FD or MSD) – Within each extraction batch (not to exceed 20 Field Samples), a minimum of one FD or MSD must be analyzed. Duplicates check the precision associated with sample collection, preservation, storage, and laboratory procedures. If method analytes are not routinely observed in Field Samples, an MSD should be analyzed rather than an FD.
- 9.6.2 Calculate the relative percent difference (RPD) for duplicate measurements (FD1 and FD2) using the equation:

$$RPD = \frac{|FD1 - FD2|}{(FD1 + FD2) / 2} \times 100$$

- 9.6.3 RPDs for FDs should be ≤30%. Greater variability may be observed when FDs have analyte concentrations that are within a factor of 2 of the RL. At these concentrations, FDs should have RPDs that are ≤50%. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the CCV, the recovery is judged to be matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.
- 9.6.4 If an MSD is analyzed instead of a FD, calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation:

$$RPD = \frac{|MS - MSD|}{(MS + MSD) / 2} \times 100$$

(MS + MSD) / 2

- 9.6.5** RPDs for duplicate MSs should be $\leq 30\%$ for samples fortified at or above their native concentration. Greater variability may be observed when MSs are fortified at analyte concentrations that are within a factor of 2 of the RL. MSs fortified at these concentrations should have RPDs that are $\leq 50\%$ for samples fortified at or above their native concentration. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCSD where applicable, the result is judged to be matrix biased. If no LCSD is present, the associated MS and MSD are to be re-analyzed to determine if any analytical has occurred. If the resulting RPDs are still outside control limits, the result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.7 Bile Salt Interference Check

- 9.7.1** The laboratory must analyze a TDCA standard after the initial calibration, prior to the analysis of tissue samples, to check for interferences caused by bile salts. If an interference is present, the chromatographic conditions must be modified to eliminate the interference from TDCA (e.g., changing the retention time of TDCA such that it falls outside the

9.8 Initial Calibration Verification (ICV)

- 9.8.1** After each ICAL, analyze a QCS sample from a source different from the source of the CAL standards. If a second vendor is not available, then a different lot of the standard should be used. The QCS should be prepared and analyzed just like a CCV. Acceptance criteria for the QCS are identical to the CCVs; the calculated amount for each analyte must be $\pm 30\%$ of the expected value. If measured analyte concentrations are not of acceptable accuracy, check the entire analytical procedure to locate and correct the problem.

9.9 Instrument Sensitivity Check (ISC)

- 9.9.1** At the start of each 12-hour shift, analyze a standard at the LOQ. The signal-to-noise ratio of the ISC standard must be greater than or equal to 3:1. If the requirements cannot be met, the problem must be corrected before analyses can proceed.

9.10 Continuing Calibration Verification (CCV)

- 9.10.1** CCV Standards must be analyzed at the beginning of each analysis batch, after every 10 Field Samples, and at the end of the analysis batch.
- 9.10.2** The recovery of native and isotopically labeled compounds for the CVs must be within 70 - 130%

9.11 Method-specific Quality Control Samples

- 9.11.1** Instrument Blank – During the analysis of a batch of samples, a solvent blank is analyzed after samples containing high level of target compounds (e.g., calibration, CV) to monitor carryover from the previous injection. The injection blank consists of the solution in Section 8.1.16 fortified with the EIS and NIS for quantitation purposes.

9.12 Example Method Sequence

- INSTRUMENT BLANK
- INSTRUMENT SENSITIVITY CHECK
- CALIBRATION VERIFICATION STANDARD
- QUALITATIVE IDENTIFICATION STANDARDS
- TDCA STANDARD (only if analyzing tissues)
- INSTRUMENT BLANK
- METHOD BLANK
- LOW-LEVEL LCS/OPR
- OPR/LCS
- SAMPLE (10 or fewer)
- CALIBRATION VERIFICATION STANDARD
- INSTRUMENT BLANK
- SAMPLE (10 or fewer)
- CALIBRATION VERIFICATION STANDARD
- INSTRUMENT BLANK

10. Procedure

10.1 Equipment Set-up

- 10.1.1** This procedure may be performed manually or in an automated mode using a robotic or automatic sample preparation device. If an automated system is used to prepare samples, follow the manufacturer's operating instructions, but all extraction and elution steps must be the same as in the manual procedure. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. If an automated system is used, the MBs should be rotated among the ports to ensure that all the valves and tubing meet the MB requirements.
- 10.1.2** Some of the PFAS's adsorb to surfaces, including polypropylene. Therefore, the aqueous sample bottles must be rinsed with the elution solvent whether extractions are performed manually or by automation. The bottle rinse is passed through the cartridge to elute the method analytes and is then collected.
- 10.1.3** The SPE cartridges and sample bottles described in this section are designed as single use items and should be discarded after use. They may not be refurbished for reuse in subsequent analyses.
- 10.1.4** All SPE apparatus, including manifolds, tubing and sample ports must be thoroughly rinsed following each use with 1% methanolic ammonium hydroxide, followed by Methanol and then DI water. Additionally, sample manifold ports and transfer tubing should be inspected regularly for signs of wear and/or

discoloration. When such observations are made, the associated components should be replaced.

- 10.1.5** Prior to the start of any extraction, sample site information must be evaluated for any potentially high level PFAS concentrations or sample matrix irregularities that may impact the extraction process. If such samples are identified, aqueous samples may be pre-screened via direct aqueous injection prior to analysis to estimate the potential PFAS concentrations present.
- 10.1.6** To perform a direct aqueous injection (DAI) screen, the sample should be inverted several times to try and evenly disperse any organic matter present. A 1 ml aliquot (or less depending on the matrix) is to be taken from the parent sample, volume adjusted to 1 ml with reagent water if less than 1ml, fortified with EIS and NIS spiking solutions to match the concentrations of an extracted sample (typically 5 µl per 1 ml DAI), and then analyzed under the same analytical conditions as field samples.

10.2 Sample Preparation of Aqueous Samples

- 10.2.1** Samples are preserved, collected, and stored as presented in Section 6.
- 10.2.2** Determine sample volume. Weigh all samples to the nearest 1g. If visible sediment is present, centrifuge and decant into a new HDPE bottle and record the weight of the new container.
- NOTE: Some of the PFAS's adsorb to surfaces, thus the sample volume may not be transferred to a graduated cylinder for volume measurement.
- 10.2.3** The MB, LCS and FRB may be prepared by measuring reagent water with a polypropylene graduated cylinder or filling an HDPE sample bottle near the top.
- 10.2.4** Check that the pH is 6.5 ± 0.5 . If necessary, adjust pH with 50% formic acid or ammonium hydroxide and 3% aqueous ammonium hydroxide. The extract is now ready for solid-phase extraction (SPE) and cleanup.
- 10.2.5** Add 20 µL of the EIS to each sample and QC, cap and invert to mix.
- 10.2.6** If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.

10.3 Sample Prep and Extraction Protocol for Soils, Solids and Sediments.

- 10.3.1** Homogenize and weigh 5 grams of sample (measured to the nearest hundredth of a gram) into a 50 ml polypropylene centrifuge tube. For laboratory control blanks and spikes, 5 grams of clean sand is used.
- 10.3.1.1** For Biosolids and other complex matrices, a small aliquot may be required due to co-extracted matrix interferences.
- 10.3.1.2** For batch QC samples using 5 g of reference solid, add 2.5 g of reagent water. The addition of reagent water to the sand provides a matrix closer in composition to real-world samples.
- 10.3.2** Add 20 µL of the EIS to each sample and QC.
- 10.3.3** If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.

- 10.3.4** Vortex the samples to evenly disperse the spiking solutions and allow to equilibrate for 30 minutes.
- 10.3.5** To all samples, add 10 ml of 0.3% methanolic ammonium hydroxide, cap, vortex for 25 seconds.
- 10.3.6** Following mixing, shake each sample for 30 minutes on a shaker table.
- 10.3.7** Centrifuge each sample at 2800RPM for 10 minutes.
- 10.3.8** Remove the supernatant and transfer to a clean 50 ml polypropylene centrifuge tube.
- 10.3.9** Repeat steps 10.3.4 to 10.3.7, with 15 ml of 0.3% methanolic ammonium hydroxide, combining the supernatants.
- 10.3.10** Add 5ml of 0.3% methanolic ammonium hydroxide to the sample, vortex for 25 seconds and centrifuge each sample at 2800RPM for 10 minutes.
- 10.3.11** Remove the supernatant and transfer to the same 50 ml polypropylene centrifuge tube containing eluates from the previous cycles.
- 10.3.12** Add 10 mg of carbon to the combined extract, mix by occasional hand shaking for no more than five minutes and then centrifuge at 2800 rpm for 10 minutes. Immediately decant the extract into a 50 ml polypropylene centrifuge tube.
- 10.3.13** Dilute to approximately 35 mL with reagent water. Samples containing more than 50% water may yield extracts that are greater than 35 mL in volume; therefore, do not add water to these. Determine the water content in the sample as follows (percent moisture is determined from the % solids):
- $$\text{Water Content in Sample} = (\text{Sample Weight} * \text{Percent moisture}) / 100$$
- 10.3.14** Concentrate each extract at approximately 55 °C with a gentle N2 flow to a final volume that is based on the water content of the sample (see table below). Allow extracts to concentrate for 10 minutes, then mix (by vortex if the volume is < 20. Continue concentrating and mixing every 5 minutes until the extract has been reduced to the required volume as specified in the table below. If the extract volume appears to stop dropping, the concentration must be stopped and the volume at which it was stopped recorded.

Water Content in Sample	Concentrated Final Volume
< 5 grams	15 ml
5-8 grams	15-20 ml
8-9 grams	20-22.5 ml
9-10 grams	22.5-25 ml

- 10.3.15** Add 40 - 50 mL of reagent water to the extract and vortex. Check that the pH is 6.5 ±0.5 and adjust as necessary with 50% formic acid or 30% ammonium hydroxide, or with 5% formic acid and 3% aqueous ammonium hydroxide. The extracts are ready for SPE and cleanup.

10.4 Sample Prep and Extraction Protocol for Tissues.

- 10.4.1** Homogenize and weigh 2 grams of sample (measured to the nearest hundredth of a gram) into a 50 ml polypropylene centrifuge tube. For laboratory control blanks and spikes, 2 grams of clean tissue is used.

- 10.4.2 Add 20 μ L of the EIS PDS to each sample and QC.
- 10.4.3 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.
- 10.4.4 Add 10 mL of 0.05M KOH in methanol to each sample. Vortex to disperse the tissue then place tubes on a mixing table to extract for at 16 hours. Centrifuge at 2800 rpm for 10 minutes and collect the supernatant in a 50-mL polypropylene centrifuge tube.
- 10.4.5 Add 10 mL of acetonitrile to remaining tissue in the 50-mL centrifuge tube, vortex to mix and disperse the tissue. Sonicate for 30 minutes. Centrifuge at 2800 rpm for 10 minutes and collect the supernatant, adding it to the 50-mL centrifuge tube containing the initial extract.
- 10.4.6 Add 5 mL of 0.05M KOH in methanol to the remaining sample in each centrifuge tube. Vortex to disperse the tissue and hand mix briefly. Centrifuge at 2800 rpm for 10 minutes and collect the supernatant, adding it to the 50-mL centrifuge tube containing the first two extracts.
- 10.4.7 Add 10 mg of carbon to the combined extract, mix by occasional hand shaking over a period of no more than five minutes and then centrifuge at 2800 rpm for 10 minutes. Immediately decant the extract into a 50-mL centrifuge tube.
- 10.4.8 Add 1 mL of reagent water to each tube and concentrate each extract at approximately 55 $^{\circ}$ C with a gentle N₂ flow to a final volume of 2.5 mL.
- 10.4.9 Add reagent water to each evaporation/concentrator tube to dilute the extracts to 50 mL. Check that the pH = 6.5 $\pm$ 0.5 and adjust as needed with 50% formic acid, or ammonium hydroxide or with 5% formic acid and 3% aqueous ammonium hydroxide. The extracts are ready for SPE and cleanup.

10.5 SPE Extract: All matrices

- 10.5.1 Pack clean silanized glass wool to half the height of the WAX SPE cartridge barrel.
- 10.5.2 Pre-condition the cartridges by washing them with 3 X 5 mL of 1% methanolic ammonium hydroxide, discarding the wash volumes.
- 10.5.3 Rinse the cartridge with 5 mL of 0.3M formic acid, allowing the cartridge to drain using gravity only, discarding the rinse volume. Do not allow the cartridge to go dry
- 10.5.4 Adjust the vacuum so that the approximate flow rate is ~5 mL/min and load the sample across the cartridge. Do not allow the cartridge to go dry before all the sample has passed through.
- 10.5.5 Once all the sample has passed across the cartridge, rinse the walls of the reservoir with 2 X 5 mL reagent water, loading the rinse across the cartridge.
- 10.5.6 Rinse the walls of the reservoir with 5 mL of 1:1 0.1M formic acid/methanol and pass the rinse through the cartridge using vacuum. Dry the cartridge by pulling air through for 15 seconds.
- 10.5.7 Rinse the inside of the sample bottle with 5 mL of 1% methanolic ammonium hydroxide. Use vacuum to pull the elution solvent through the cartridge and into the collection tubes. When the cartridge bed and glass wool are submerged, stop the cartridge flow by closing the valve, keeping the sorbent bed and wool submerged.

- 10.5.8 Let the wetted sorbent bed and wool soak for 1 minute.
- 10.5.9 Open the cartridge valve and collect the eluate into a 15 ml polypropylene collection tube.
- 10.5.10 Add 25 µL of concentrated acetic acid to each sample eluted in the collection tubes and vortex to mix.
- 10.5.11 Add 10 mg of carbon to each sample and batch QC extract, using a 10-mg scoop. Handshake occasionally for no more than 5 minutes. It is important to minimize the time the sample extract is in contact with the carbon. Immediately vortex (30 seconds) and centrifuge at 2800 rpm for 10 minutes.
- 10.5.12 Add NIS solution to a clean collection tube. Place a syringe filter (25-mm filter, 0.2-µm nylon membrane) on a 5-mL polypropylene syringe. Take the plunger out and carefully decant the sample supernatant into the syringe barrel. Replace the plunger and filter the entire extract into the new collection tube containing the NIS.
- 10.5.13 Vortex to mix and transfer a portion of the extract into a .7-mL polypropylene LC vial for LC-MS/MS analysis. Cap the collection tube containing the remaining extract and store at 4 °C

10.6 Sample Volume Determination

- 10.6.1 If using weight to determine volume, weigh the empty bottle to the nearest 1 g and determine the sample weight by subtraction of the empty bottle weight from the original sample weight. Assume a sample density of 1.0 g/mL. In either case, the sample volume will be used in the final calculations of the analyte concentration.

10.7 Initial Calibration - Demonstration and documentation of acceptable initial calibration is required before any samples are analyzed. After the initial calibration is successful, a CCV is required at the beginning and end of each period in which analyses are performed, and after every tenth Field Sample.

10.7.1 ESI-MS/MS TUNE

- 10.7.1.1 Calibrate the mass scale of the MS with the calibration compounds and procedures prescribed by the manufacturer.
- 10.7.1.2 Optimize the [M-H]⁻ or [M-CO₂]⁻ for each method analyte by infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (0.4 mL/min). This tune can be done on a mix of the method analytes. The MS parameters (voltages, temperatures, gas flows, etc.) are varied until optimal analyte responses are determined. The method analytes may have different optima requiring some compromise between the optima.

The Mass spec conditions found in Table 7 show the Sciex Triple Quad 5500+ operation conditions used in this method.

- 10.7.1.3 Optimize the product ion for each analyte by infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (approximately 0.4 mL/min). This tune can be done on a mix of the method analytes. The MS/MS parameters (collision gas pressure,

collision energy, etc.) are varied until optimal analyte responses are determined. Typically, the carboxylic acids have very similar MS/MS conditions, and the sulfonic acids have similar MS/MS conditions.

The conditions found on table 5 are representative of expected tune optimizations for each analyte. If conditions other than the ones close to the values provided in table 5 are achieved, the process should be re-performed and/or instrument maintenance performed to resolve the problem.

- 10.7.2** Establish LC operating parameters that optimize resolution and peak shape. Modifying the standard or extract composition to more aqueous content to prevent poor shape is not permitted.

Table 6 represents the operation conditions of a Sciex Exion LC system when running this method.

- 10.7.3** Inject 2 μ l of a mid-level CAL standard under LC/MS conditions to obtain the retention times of each method analyte. Divide the chromatogram into retention time windows each of which contains one or more chromatographic peaks. During MS/MS analysis, fragment a small number of selected precursor ions ([M-H]⁻) for the analytes in each window and choose the most abundant product ion. For maximum sensitivity, small mass windows of ± 0.5 daltons around the product ion mass were used for quantitation.

- 10.7.4** Inject a mid-level CAL standard under optimized LC/MS/MS conditions to ensure that each method analyte is observed in its MS/MS window and that there are at least 10 scans across the peak for optimum precision.

NOTE: PFHxS, PFOS, NMeFOSAA, and NeFOSAA have multiple chromatographic peaks using the LC conditions in Table 7 due to chromatographic resolution of the linear and branched isomers of these compounds. Most PFAS's are produced by two different processes. One process gives rise to linear PFAS's only while the other process produces both linear and branched isomers. Thus, both branched and linear PFAS's can potentially be found in the environment. For the aforementioned compounds that give rise to more than one peak, all the chromatographic peaks observed in the standard must be integrated and the areas totaled. Chromatographic peaks in a sample must be integrated in the same way as the CAL standard.

- 10.7.5** Prepare a set of CAL standards as outlined in table 5. The lowest concentration CAL standard must be at or below the LOQ.

- 10.7.6** The LC/MS/MS system is calibrated using the isotope dilution technique. Target analytes are quantitated against their isotopically labeled analog (Extracted Internal Standard) where commercially available. If a labeled analog is not commercially available, the extracted internal standard with the closest retention time and /or closest chemical similarity is to be used. Use the LC/MS/MS data system software to generate a linear regression or quadratic calibration curve for each of the analytes. This curve must always be forced through zero and may be concentration weighted, if necessary. Forcing zero allows for a better estimate of the background levels of method analytes. A minimum of 6 calibration points are required for a linear or quadratic calibration model.

- 10.7.7 CALIBRATION ACCEPTANCE CRITERIA** – A linear fit is acceptable if the calculated RSD or RSE for each target analyte is $\leq 20\%$. If linear or Quadratic regressions are used, coefficient of determination (r^2) values must be greater

than 0.99. When quantitated using the initial calibration curve, each calibration point at or above the LOQ for each analyte must calculate to be within 70-130% of its true value. The calculate value of each EIS analyte must be within 50-150% of its true value. If these criteria cannot be met, corrective action is taken to reanalyze the CAL standards, restrict the range of calibration.

- 10.7.8 Bile salts interference check** - The laboratory must analyze a TDCA standard after the initial calibration, prior to the analysis of tissue samples, to check for interferences caused by bile salts. If an interference is present, the chromatographic conditions must be modified to eliminate the interference from TDCA (e.g., changing the retention time of TDCA such that it falls outside the retention window for PFOS by at least one minute), and the initial calibration repeated.

10.8 CONTINUING CALIBRATION CHECK (CCV) – Minimum daily calibration verification is as follows. Verify the initial calibration at the beginning and end of each group of analyses, and after every tenth sample during analyses. In this context, a “sample” is considered to be a Field Sample. MBs, CCVs, LCSs, MSs, FDs FRBs and MSDs are not counted as samples. The beginning CCV of each analysis batch must be at or below the RL in order to verify instrument sensitivity prior to any analyses. If standards have been prepared such that all low CAL points are not in the same CAL solution, it may be necessary to analyze two CAL standards to meet this requirement. Alternatively, the analyte concentrations in the analyte PDS may be customized to meet these criteria. Subsequent CCVs should alternate between a medium and Low concentration CAL standard.

- 10.8.1** Inject an aliquot of the appropriate concentration CAL standard and analyze with the same conditions used during the initial calibration.
- 10.8.2** Calculate the concentration of each analyte and EIS in the CCV. The calculated amount for each native and EIS analyte for medium level CCVs must be within $\pm 30\%$ of the true. If these conditions do not exist, then all data for the problem analyte must be considered invalid, and remedial action should be taken which may require recalibration. Any Field or QC Samples that have been analyzed since the last acceptable calibration verification should be reanalyzed after adequate calibration has been restored, with the following exception. If the CCV fails because the calculated concentration is greater than 130% for a particular method analyte, and Field Sample extracts show no detection for that method analyte, non-detects may be reported without re-analysis.
- 10.8.3 REMEDIAL ACTION** – Failure to meet CCV QC performance criteria may require remedial action. Major maintenance, such as cleaning the electrospray probe, atmospheric pressure ionization source, cleaning the mass analyzer, replacing the LC column, etc., requires recalibration and verification of sensitivity by analyzing a CCV at or below the LOQ.

10.9 EXTRACT ANALYSIS

- 10.9.1** The same operating conditions used for the initial calibration and summarized in Tables 6 and 7 are to be used.
- 10.9.2** Prior to analysis of sample extracts, the Instrument mass calibration verification must be performed using standards whose mass range brackets the masses of

interest and performed in the negative ion mode. The mass calibration is verified if the calculated mass is within $\pm .2$ daltons of the specified mass.

- 10.9.3** Establish an appropriate retention time window for each analyte. This should be based on measurements of actual retention time variation for each method analyte in CAL standard solutions analyzed on the LC over the course of time. A value of plus or minus three times the standard deviation of the retention time obtained for each method analyte while establishing the initial calibration can be used to calculate a suggested window size. However, the experience of the analyst should weigh heavily on the determination of the appropriate retention window size.
- 10.9.4** Calibrate the system by either the analysis of a calibration curve or by confirming the initial calibration is still valid by analyzing a CCV.
- 10.9.5** Begin analyzing Field Samples, including QC samples, at their appropriate frequency by injecting the same size aliquots under the same conditions used to analyze the CAL standards.
- 10.9.6** For concentrations at or above the method LOQ, the total (branched and linear isomer) quantification ion response to the total (branched and linear isomer) confirmation ion response ratio must fall within $\pm 50\%$ of the ratio observed in the midpoint initial calibration standard.
- 10.9.7** At the conclusion of data acquisition, use the same software that was used in the calibration procedure to identify peaks of interest in predetermined retention time windows. Use the data system software to examine the ion abundances of the peaks in the chromatogram. Identify an analyte by comparison of its retention time with that of the corresponding method analyte peak in a reference standard.
 - 10.9.7.1** Method analyte, EIS analyte, and NIS analyte RTs must fall within 0.4 minutes of the predicted retention times from the midpoint standard of the ICAL or initial daily CV, whichever was used to establish the RT window position for the analytical batch. All branched isomer peaks identified in either the calibration standard or the qualitative (technical grade) standard must fall within in the retention time window for that analyte.
 - 10.9.7.2** For all method analytes with exact corresponding isotopically labeled analogs, method analytes must elute within 0.1 minutes of the associated EIS.
- 10.9.8** The analyst must not extrapolate beyond the established calibration range. If an analyte peak area exceeds the range of the initial calibration curve, the sample should be re-extracted with a reduced sample volume in order to bring the out of range target analytes into the calibration range. If a smaller sample size would not be representative of the entire sample, the following options are recommended. Re-extract an additional aliquot of sufficient size to ensure that it is representative of the entire sample. Spike it with a higher concentration of internal standard. Prior to LC/MS analysis, dilute the sample so that it has a concentration of internal standard equivalent to that present in the calibration standard. Then, analyze the diluted extract.³
- 10.9.9** In instances where re-extraction is not an option, dilute a subsample of the sample extract with 0.1% acetic acid by a factor no greater than 10x adjust the amount of the NIS in the diluted extract, and analyze the diluted extract. If the responses for each EIS in the diluted extract meet the S/N and retention time, and the EIS recoveries from the analysis of the diluted extract are greater than

5%, then the compounds associated with those EISs may be quantified using isotope dilution. Use the EIS recoveries from the original analysis to select the dilution factor, with the objective of keeping the EIS recoveries in the dilution above that 5% lower limit. If the adjusted EIS recoveries are below 5%, the dilution is assumed invalid. If the adjusted EIS recoveries are greater than 5%, adjust the compound concentrations, detection limits, and minimum levels to account for the dilution.

11. Data Evaluation, Calculations and Reporting

11.1 Complete chromatographic resolution is not necessary for accurate and precise measurements of analyte concentrations using MS/MS. In validating this method, concentrations were calculated by measuring the product ions listed in Table 9.

11.2 Calculate analyte concentrations using the multipoint calibration established in Section 10.9. Do not use daily calibration verification data to quantitate analytes in samples. Adjust final analyte concentrations to reflect the actual sample volume determined in Section 10.8

$$C_{\text{ex}} = (\text{Area of target analyte} * \text{Concentration of Labeled analog}) / (\text{area of labeled analog} * \text{CF})$$

$$C_{\text{s}} = (C_{\text{ex}} / \text{sample volume in ml}) * 1000$$

C_{ex} = The concentration of the analyte in the extract
CF = calibration factor from calibration.

11.3 Prior to reporting the data, the chromatogram should be reviewed for any incorrect peak identification or poor integration.

11.4 PFHxS, PFOS, PFOA, NMeFOSAA, and NEtFOSAA have multiple chromatographic peaks using the LC conditions in Table 7 due to the linear and branch isomers of these compounds (Sect. 10.10.4.). The areas of all the linear and branched isomer peaks observed in the CAL standards for each of these analytes must be summed and the concentrations reported as a total for each of these analytes.

11.5 Calculations must utilize all available digits of precision, but final reported concentrations should be rounded to an appropriate number of significant figures (one digit of uncertainty), typically two, and not more than three significant figures.

12. Contingencies for Handling Out-of-Control Data or Unacceptable Data

12.1 Section 9.0 outlines sample batch QC acceptance criteria. If non-compliant organic compound results are to be reported, the Organic Section Head and/or the Laboratory Director, and the Operations Manager must approve the reporting of these results. The laboratory Project Manager shall be notified and may choose to relay the non-compliance to the client, for approval, or other corrective action, such as re-sampling and re-analysis. The analyst, Data Reviewer, or Department Supervisor performing the secondary review initiates the project narrative, and the narrative must clearly document the non-compliance and provide a reason for acceptance of these results.

12.2 All results for the organic compounds of interest are reportable without qualification if extraction and analytical holding times are met, preservation requirements (including cooler

temperatures) are met, all QC criteria are met, and matrix interference is not suspected during extraction or analysis of the samples. If any of the below QC parameters are not met, all associated samples must be evaluated for re-extraction and/or re-analysis.

13. Method Performance

13.1 Detection Limit Study (DL) / Limit of Detection Study (LOD) / Limit of Quantitation (LOQ)

13.1.1 The laboratory follows the procedure to determine the DL, LOD, and/or LOQ as outlined in Alpha SOP ID 1732. These studies performed by the laboratory are maintained on file for review.

13.2 Demonstration of Capability Studies

13.2.1 Refer to Alpha SOP ID 1739 for further information regarding IDC/DOC Generation.

13.2.2 The analyst must make a continuing, annual, demonstration of the ability to generate acceptable accuracy and precision with this method.

14. Pollution Prevention and Waste Management

14.1 Refer to Alpha's Chemical Hygiene Plan and Hazardous Waste Management and Disposal SOP for further pollution prevention and waste management information.

14.2 This method utilizes SPE to extract analytes from water. It requires the use of very small volumes of organic solvent and very small quantities of pure analytes, thereby minimizing the potential hazards to both the analyst and the environment as compared to the use of large volumes of organic solvents in conventional liquid-liquid extractions.

14.3 The analytical procedures described in this method generate relatively small amounts of waste since only small amounts of reagents and solvents are used. The matrices of concern are finished drinking water or source water. However, laboratory waste management practices must be conducted consistent with all applicable rules and regulations, and that laboratories protect the air, water, and land by minimizing and controlling all releases from fume hoods and bench operations. Also, compliance is required with any sewage discharge permits and regulations, particularly the hazardous waste identification rules and land disposal restrictions.

15. Referenced Documents

Chemical Hygiene Plan – ID 2124

SOP ID 1732 Detection Limit (DL), Limit of Detection (LOD) & Limit of Quantitation (LOQ) SOP

SOP ID 1739 Demonstration of Capability (DOC) Generation SOP

SOP ID 1728 Hazardous Waste Management and Disposal SOP

16. Attachments

Table 1: Names, Abbreviations, and CAS Registry Numbers for Target PFAS, Extracted Internal Standards and Non-extracted Internal Standards

Parameter	Acronym	CAS
PER- and POLYFLUOROALKYLETER CARBOXYLIC ACIDS (PFECAs)		
Tetrafluoro-2-(heptafluoropropoxy)propanoic acid	HFPO-DA	13252-13-6
4,8-dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
PERFLUOROALKYLCARBOXILIC ACIDS (PFCAs)		
Perfluorobutanoic acid	PFBA	375-22-4

Perfluoropentanoic acid	PFPeA	2706-90-3
Perfluorohexanoic acid	PFHxA	307-24-4
Perfluoroheptanoic acid	PFHpA	375-85-9
Perfluorooctanoic acid	PFOA	335-67-1
Perfluorononanoic acid	PFNA	375-95-1
Perfluorodecanoic acid	PFDA	335-76-2
Perfluoroundecanoic acid	PFUnA	2058-94-8
Perfluorododecanoic acid	PFDoA	307-55-1
Perfluorotridecanoic acid	PFTTrDA	72629-94-8
Perfluorotetradecanoic acid	PFTeDA	376-06-7
PERFLUOROALKYL SULFONIC ACIDS (PFASs)		
Perfluorobutanesulfonic acid	PFBS	375-73-5
Perfluoropentanesulfonic acid	PFPeS	2706-91-4
Perfluorohexanesulfonic acid	PFHxS	355-46-4
Perfluoroheptanesulfonic acid	PFHpS	375-92-8
Perfluorooctanesulfonic acid	PFOS	1763-23-1
Perfluorononanesulfonic acid	PFNS	68259-12-1
Perfluorodecanesulfonic acid	PFDS	335-77-3

Perfluorododecanesulfonic acid	PFDoS	79780-39-5
CHLORO-PERFLUOROALKYLSULFONATE		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	9Cl-PF3ONS	756426-58-1
FLUOROTELOMER CARBOXYLIC ACIDS		
3-Perfluoropropyl propanoic acid	3:3FTCA	356-02-5
2H,2H,3H,3H-Perfluorooctanoic acid	5:3FTCA	914637-49-3
Perfluoroheptyl propanoic acid	7:3FTCA	812-70-4
PERFLUOROOCTANESULFONAMIDES		
Perfluorooctanesulfonamide	PFOSA	754-91-6
N-methylperfluoro-1-octanesulfonamide	NMeFOSA	31506-32-8
N-ethylperfluoro-1-octanesulfonamide	NEtFOSA	4151-50-2
PERFLUOROOCTANE SULFONAMIDE ETHANOLS		
N-Methyl perfluorooctanesulfonamidoethanol	NMeFOSE	24448-09-7
N-ethyl perfluorooctanesulfonamidoethanol	NEtFOSE	1691-99-2
TELOMER SULFONIC ACIDS		
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2)	4:2FTS	757124-72-4

1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	6:2FTS	27619-97-2
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	8:2FTS	39108-34-4
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS		
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6
PERFLUOROETHER AND POLYETHER CARBOXYLIC ACIDS		
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6

Table 2: Stock and Nominal Extracted Internal Standard Concentrations

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Nominal amount of EIS added to extracts (ng)
M4PFBA	2000	40
M5PFPeA	1000	20
M5PFHxA	500	10
M4PFHpA	500	10
M8PFOA	500	10
M9PFNA	250	5
M6PFDA	250	5
M7PFUdA	250	5
MPFDoA	250	5
M2PFTeDA	250	5
M3PFBS	466	9.32
M3PFHxS	474	9.48
M8PFOS	479	9.58
M2-4:2FTS	938	18.8
M2-6:2FTS	951	19
M2-8:2FTS	960	19.2
M8FOSA	500	10

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Nominal amount of EIS added to extracts (ng)
d3-N-MeFOSA	500	10
d5-N-EtFOSA	500	10
d3-N-MeFOSAA	1000	20
d5-N-EtFOSAA	1000	20
d7-N-MeFOSE	5000	100
d9-N-EtFOSE	5000	100
M3HFPO-DA	2000	40

Table 3: Stock and Nominal Non-Extracted Internal Standard Concentrations

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Nominal amount of EIS added to extracts (ng)
M3PFBA	1000	40
M2PFHxA	500	10
M4PFOA	500	10
M5PFNA	250	5
M2PFDA	250	5
18O2PFHxS	474	9.48
M4PFOS	479	9.58

Table 4: Initial Calibration levels and Concentrations

Analyte	Cal A	Cal B (LOQ)	CAL C	Cal D	Cal E (CCV)	Cal F	Cal G	Cal H	Cal I
PFBA	.4	.8	2	5	10	20	50	250	500
PFPeA	.2	.4	1	2.5	5	10	25	125	250
PFHxA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFHpA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFOA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFNA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFDA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFUnA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFDaA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFTDA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFTA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFBS	0.089	0.177	0.444	1.11	2.22	4.44	11.1	55.4	111
PFPeS	0.094	0.188	0.471	1.18	2.35	4.71	11.8	58.8	118
PFHxS	0.091	0.183	0.457	1.14	2.29	4.57	11.4	57.1	114
PFHpS	0.095	0.191	0.477	1.19	2.38	4.77	11.9	59.6	119

PFOS	0.093	0.186	0.464	1.16	2.32	4.64	11.6	58	116
PFNS	0.096	0.192	0.481	1.20	2.41	4.81	12	60.1	120
PFDS	0.097	0.193	0.483	1.21	2.41	4.83	12.1	60.3	121
PFDOS	0.097	0.194	0.485	1.21	2.43	4.85	12.1	60.6	121.
4:2FTS	0.375	0.75	1.88	4.69	9.38	18.8	46.9	234	469
6:2FTS	0.38	0.76	1.9	4.75	9.5	19	47.5	238	475
8:2FTS	0.384	0.768	1.92	4.8	9.6	19.2	48	240	480
PFOSA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NMeFOSA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NEtFOSA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NMeFOSAA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NEtFOSAA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NMeFOSE	1	2	5	12.5	25	50	125	625	1250
NEtFOSE	1	2	5	12.5	25	50	125	625	1250
HFPO-DA	.4	.8	2	5	10	20	50	250	500
ADONA	0.378	0.756	1.89	4.73	9.45	18.9	47.3	236	473
9Cl-PFONS	0.374	0.748	1.87	4.68	9.35	18.7	46.8	234	468
11Cl-PFOUdS	0.378	0.756	1.89	4.73	9.45	18.9	47.3	236	473
PFMPA	.2	.4	1	2.5	5	10	25	125	250
PFMBA	.2	.4	1	2.5	5	10	25	125	250
PFEESA	0.178	0.356	0.89	2.23	4.45	8.9	22.3	111	223
NFDHA	.2	.4	1	2.5	5	10	25	125	250
3:3FTCA	.5	1	2.5	6.25	12.5	25	62.5	312	624
5:3FTCA	2.5	5	12.5	31.3	62.5	125	312	1560	3120
7:3FTCA	2.5	5	12.5	31.3	62.5	125	312	1560	3125
M4PFBA	10	10	10	10	10	10	10	10	10
M5PFPeA	5	5	5	5	5	5	5	5	5
M5PFHxA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M4PFHpA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M8PFOA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M9PFNA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M6PFDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M7PFUdA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
MPFD _o A	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M2PFTeDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M3PFBS	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33

M3PFHxS	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
M8PFOS	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
M2-4:2FTS	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69
M2-6:2FTS	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76
M2-8:2FTS	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
M8FOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
d3-N-MeFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
d5-N-EtFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
d3-N-MeFOSAA	5	5	5	5	5	5	5	5	5
d5-N-EtFOSAA	5	5	5	5	5	5	5	5	5
d7-N-MeFOSE	25	25	25	25	25	25	25	25	25
d9-N-EtFOSE	25	25	25	25	25	25	25	25	25
M3HFPO-DA	10	10	10	10	10	10	10	10	10
M3PFBA	5	5	5	5	5	5	5	5	5
M2PFHxA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M4PFOA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M5PFNA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M2PFDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
18O2PFHxS	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
M4PFOS	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4

Table 5: Expected Mass Transitions and instrument conditions.

Q1	Q2	Analyte	DP Volts	CE Volts
213.032	169.022	PFBA	-50	-14
263.039	219.03	PFPeA	-55	-12
263.039	68.9	PFPeA_2	-55	-55
313.047	269.037	PFHxA	-45	-12
313.047	119	PFHxA_2	-45	-28
363.055	319.045	PFHpA	-60	-12
363.055	169.022	PFHpA_2	-60	-24
413.063	369.053	PFOA	-65	-14
413.063	169.022	PFOA_2	-65	-23
463.071	419.061	PFNA	-70	-14
463.071	219.03	PFNA_2	-70	-24
513.078	469.069	PFDA	-80	-16
513.078	219.03	PFDA_2	-80	-30

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563.086	519.076	PFUnA	-85	-18
563.086	269.037	PFUnA_2	-85	-25
613.094	569.084	PFDaA	-85	-18
613.094	319.045	PFDaA_2	-85	-28
663.102	619.092	PFTTrDA	-85	-20
663.102	169.022	PFTTrDA_2	-85	-36
713.11	669.1	PFTA	-70	-22
713.11	169.022	PFTA_2	-70	-38
299.092	80.062	PFBS	-100	-65
299.092	99.061	PFBS_2	-100	-40
349.1	80.062	PFPeS	-100	-75
349.1	99.061	PFPeS_2	-100	-60
399.107	80.062	PFHxS	-120	-75
399.107	99.061	PFHxS_2	-120	-80
449.115	80.062	PFHpS	-140	-95
449.115	99.061	PFHpS_2	-140	-80
499.113	80.062	PFOS	-145	-108
499.113	99.061	PFOS_2	-145	-85
549.131	80.062	PFNS	-180	-100
549.131	99.061	PFNS_2	-180	-100
599.139	80.062	PFDS	-170	-110
599.138	99.061	PFDS_2	-170	-100
699.154	80.062	PFDaS	-160	-150
699.154	99.061	PFDaS_2	-160	-130
327.146	307.139	4:2FTS	-100	-28
327.146	81.07	4:2FTS_2	-100	-50
427.161	407.155	6:2FTS	-120	-33
427.161	81.07	6:2FTS_2	-120	-65
527.177	507.17	8:2FTS	-140	-39
527.177	81.07	8:2FTS_2	-140	-85
498.146	78.07	FOSA	-150	-90
498.146	478	FOSA_2	-150	-35
512.163	219.03	NMeFOSA	-130	-35
512.163	169.022	NMeFOSA_2	-130	-40
526.192	219.03	NEtFOSA	-140	-35
526.192	169.022	NEtFOSA_2	-140	-35
570.202	419.061	NMeFOSAA	-100	-28
570.202	483	NMeFOSAA_2	-100	-22
584.229	419.061	NEtFOSAA	-100	-28

584.229	526.192	NEtFOSAA_2	-100	-38
616.1	58.9	NMeFOSE	-90	-70
630	58.9	NEtFOSE	-80	-75
285.035	169.022	HFPO-DA	-60	-12
285.035	184.9	HFPO-DA_2	-60	-18
377.06	251.028	ADONA	-65	-18
377.06	84.8	ADONA_2	-65	-48
530.8	351.05	9CI-PFONS	-130	-38
532.8	353	9CI-PFONS_2	-130	-38
630.9	451.031	11CI-PFOUdS	-145	-41
632.9	452.9	11CI-PFOUdS_2	-145	-41
241.085	177.069	3:3FTCA	-60	-12
241.085	117	3:3FTCA_2	-60	-50
341.101	237.072	5:3FTCA	-70	-20
341.101	217	5:3FTCA_2	-70	-35
441.117	316.9	7:3FTCA	-85	-30
441.117	337.088	7:3FTCA_2	-85	-20
315.093	135.013	PFEESA	-100	-35
315.093	82.9	PFEESA_2	-100	-25
229.032	85.006	PFMPA	-40	-25
279.042	85.006	PFMBA	-45	-25
295.032	201	NFDHA	-30	-15
295.032	84.9	NFDHA_2	-30	-40
217.001	171.999	MPFBA	-50	-14
268.001	222.999	M5PFPeA	-55	-12
318.009	273.007	M5PFHxA	-45	-12
367.024	322.022	M4PFHpA	-60	-12
421.002	376	M8PFOA	-65	-14
472.002	427	M9PFNA	-70	-14
519.033	474.03	M6PFDA	-80	-16
570.033	525.031	M7-PFUDa	-85	-18
615.079	570.033	MPFDoA	-85	-18
715.094	670.092	M2PFTeDA	-70	-22
302.069	80.062	M3PFBS	-100	-65
402.084	80.062	M3PFHxS	-120	-74
507.062	80.062	M8PFOS	-145	-85
329.13	81.07	M2-4:2FTS	-100	-50
429.162	81.07	M2-6:2FTS	-120	-65
529.162	81.07	M2-8:2FTS	-140	-85

506.077	78.07	M8FOSA	-150	-90
515.183	219.03	d3-NMeFOSA	-130	-35
531.222	219.03	d5-NEtFOSA	-140	-35
573.22	419.061	d3-NMeFOSAA	-75	-28
589.259	419.061	d5-NEtFOSAA	-90	-28
623.2	58.9	d7-NMeFOSE	-100	-28
639.2	58.9	d9-NEtFOSE	-100	-28
287.02	169.022	M3HFPO-DA	-60	-12
216.009	171.999	M3PFBA	-50	-14
315.032	270.03	M2PFHxA	-45	-12
417.032	372.03	M4PFOA	-65	-14
468.032	423.03	M5PFNA	-70	-14
515.063	470.061	M2PFDA	-80	-16
403.107	84.062	18O2-PFHxS	-120	-74
503.093	80.062	M4PFOS	-145	-85

Table 6: LC Method Conditions

Time (min)	2 mM Ammonium Acetate (5:95 CH ₃ H ₂ O)	100% Acetonitrile	Gradient Curve
Initial	100.0	0.0	0
.2	100.0	0.0	2
4	70	30	7
7	45	55	8
9	25	80	8
10	5	95	6
10.4	98	2	10
11.8	100	0	7
12	100	0	1
Waters Aquity UPLC ® BEHC ₁₈ 2.1 x 50 mm packed with 1.7 µm BEH C ₁₈ stationary phase Flow rate of 0.4 mL/min 2 µL injection			

Table 7: ESI-MS Method Conditions

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ESI Conditions	
Polarity	Negative ion
Curtain Gas	30
Collision gas	9
Ion Spray Voltage	-4500
Desolvation gas temp.	500 °C
Ion Source Gas 1	30
Ion Source Gas 2	50
Entrance Poitential	-10
Exic Cell Potential	-11

Table 8. Reporting limits by Matrix

Compound	Aqueous (ng/L)	Solid (ng/g)	Tissue (ng/g)
PFBA	6.4	0.8	2
PFPeA	3.2	0.4	1
PFHxA	1.6	0.2	0.5
PFHpA	1.6	0.2	0.5
PFOA	1.6	0.2	0.5
PFNA	1.6	0.2	0.5
PFDA	1.6	0.2	0.5
PFUnA	1.6	0.2	0.5
PFDoA	1.6	0.2	0.5
PFTTrDA	1.6	0.2	0.5
PFTA	1.6	0.2	0.5
PFBS	1.6	0.2	0.5
PFPeS	1.6	0.2	0.5
PFHxS	1.6	0.2	0.5
PFHpS	1.6	0.2	0.5
PFOS	1.6	0.2	0.5
PFNS	1.6	0.2	0.5
PFDS	1.6	0.2	0.5
PFDoS	1.6	0.2	0.5
4:2FTS	6.4	0.8	2
6:2FTS	6.4	0.8	2
8:2FTS	6.4	0.8	2
FOSA	1.6	0.2	2
NMeFOSA	1.6	0.2	0.5
NEtFOSA	1.6	0.2	0.5
NMeFOSAA	1.6	0.2	0.5

NEtFOSAA	1.6	0.2	0.5
NMeFOSE	16	2	5
NEtFOSE	16	2	5
HFPO-DA	6.4	0.8	2
ADONA	6.4	0.8	2
9CI-PFONS	6.4	0.8	2
11CI-PFOUdS	6.4	0.8	2
3:3FTCA	8	1	2.5
5:3FTCA	40	5	12.5
7:3FTCA	40	5	12.5
PFEESA	3.2	0.4	1
PFMPA	3.2	0.4	1
PFMBA	3.2	0.4	1
NFDHA	3.2	0.4	1



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C&S Companies

TCL Pesticides - EPA 8081B (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 120ml unpreserved

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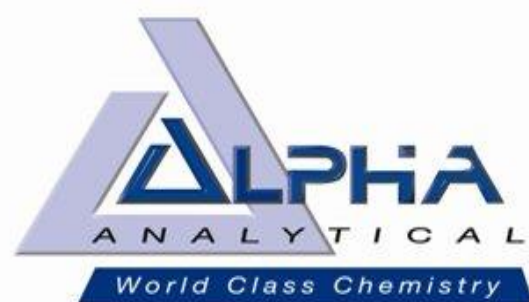
Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Alpha Analytical, Inc.



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C&S Companies

PFAAs via EPA 1633 (Draft) (WATER)

Holding Time: 28 days
Container/Sample Preservation: 3 - Plastic 500ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluorobutanoic Acid (PFBA)	375-22-4	6.4	1.024	ng/l	40-150	30	40-150	30	30			
Perfluoropentanoic Acid (PFPeA)	2706-90-3	3.2	0.856	ng/l	40-150	30	40-150	30	30			
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	1.6	0.536	ng/l	40-150	30	40-150	30	30			
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	6.4	1.672	ng/l	40-150	30	40-150	30	30			
Perfluorohexanoic Acid (PFHxA)	307-24-4	1.6	0.472	ng/l	40-150	30	40-150	30	30			
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	1.6	0.28	ng/l	40-150	30	40-150	30	30			
Perfluoroheptanoic Acid (PFHpA)	375-85-9	1.6	0.32	ng/l	40-150	30	40-150	30	30			
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	1.6	0.384	ng/l	40-150	30	40-150	30	30			
Perfluorooctanoic Acid (PFOA)	335-67-1	1.6	0.696	ng/l	40-150	30	40-150	30	30			
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	27619-97-2	6.4	2.16	ng/l	40-150	30	40-150	30	30			
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	1.6	0.432	ng/l	40-150	30	40-150	30	30			
Perfluorononanoic Acid (PFNA)	375-95-1	1.6	0.504	ng/l	40-150	30	40-150	30	30			
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	1.6	0.728	ng/l	40-150	30	40-150	30	30			
Perfluorodecanoic Acid (PFDA)	335-76-2	1.6	0.648	ng/l	40-150	30	40-150	30	30			
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	6.4	2.488	ng/l	40-150	30	40-150	30	30			
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	1.6	0.496	ng/l	40-150	30	40-150	30	30			
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSA)	2355-31-9	1.6	0.872	ng/l	40-150	30	40-150	30	30			
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1.6	0.696	ng/l	40-150	30	40-150	30	30			
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	1.6	0.368	ng/l	40-150	30	40-150	30	30			
Perfluorooctanesulfonamide (FOSA)	754-91-6	1.6	0.432	ng/l	40-150	30	40-150	30	30			
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	1.6	0.864	ng/l	40-150	30	40-150	30	30			
Perfluorododecanoic Acid (PFDoA)	307-55-1	1.6	0.736	ng/l	40-150	30	40-150	30	30			
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	1.6	0.6	ng/l	40-150	30	40-150	30	30			
Perfluorotetradecanoic Acid (PFTA)	376-06-7	1.6	0.424	ng/l	40-150	30	40-150	30	30			
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-P-	13252-13-6	6.4	0.896	ng/l	40-150	30	40-150	30	30			
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	919005-14-4	6.4	1.008	ng/l	40-150	30	40-150	30	30			
Perfluorododecane Sulfonic Acid (PFDoDS)	79780-39-5	1.6	0.608	ng/l	40-150	30	40-150	30	30			
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF)	756426-58-1	6.4	1.32	ng/l	40-150	30	40-150	30	30			
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11C)	763051-92-9	6.4	1.32	ng/l	40-150	30	40-150	30	30			
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	31506-32-8	1.6	0.696	ng/l	40-150	30	40-150	30	30			
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	4151-50-2	1.6	0.736	ng/l	40-150	30	40-150	30	30			
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	24448-09-7	16	3.76	ng/l	40-150	30	40-150	30	30			
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	1691-99-2	16	1.96	ng/l	40-150	30	40-150	30	30			
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	377-73-1	3.2	0.456	ng/l	40-150	30	40-150	30	30			
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	863090-89-5	3.2	0.424	ng/l	40-150	30	40-150	30	30			
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	113507-82-7	3.2	0.352	ng/l	40-150	30	40-150	30	30			
Nonafuoro-3,6-Dioxaheptanoic Acid (NFDHA)	151772-58-6	3.2	1.888	ng/l	40-150	30	40-150	30	30			
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	356-02-5	8	2.64	ng/l	40-150	30	40-150	30	30			
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	914637-49-3	40	9.36	ng/l	40-150	30	40-150	30	30			
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	812-70-4	40	6.312	ng/l	40-150	30	40-150	30	30			
Perfluoro[13C4]Butanoic Acid (MPFBA)	NONE										20-150	
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	NONE										20-150	

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C&S Companies

PFAAs via EPA 1633 (Draft) (WATER)

Holding Time: 28 days
Container/Sample Preservation: 3 - Plastic 500ml unpreserved

[illegible]

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
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C&S Companies

Herbicides -EPA 8151A (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 1000ml unpreserved

[illegible]

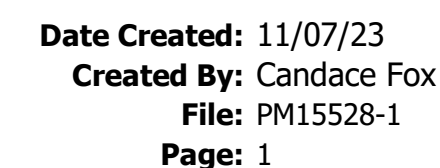
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C&S Companies

TCL Pesticides - EPA 8081B (SOIL)

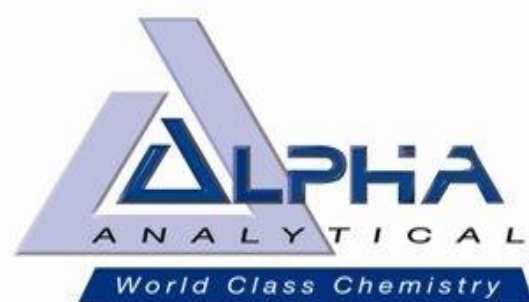
Holding Time: 14 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

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C&S Companies

PFAAs via EPA 1633 (Draft) (SOIL)

Holding Time: 90 days
Container/Sample Preservation: 1 - Plastic 8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluorobutanoic Acid (PFBA)	375-22-4	0.8	0.0504	ng/g	40-150	30	40-150	30	30			
Perfluoropentanoic Acid (PFPeA)	2706-90-3	0.4	0.056	ng/g	40-150	30	40-150	30	30			
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	0.2	0.0432	ng/g	40-150	30	40-150	30	30			
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	0.8	0.0808	ng/g	40-150	30	40-150	30	30			
Perfluorohexanoic Acid (PFHxA)	307-24-4	0.2	0.0464	ng/g	40-150	30	40-150	30	30			
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	0.2	0.0232	ng/g	40-150	30	40-150	30	30			
Perfluoroheptanoic Acid (PFHpA)	375-85-9	0.2	0.0232	ng/g	40-150	30	40-150	30	30			
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	0.2	0.0592	ng/g	40-150	30	40-150	30	30			
Perfluorooctanoic Acid (PFOA)	335-67-1	0.2	0.052	ng/g	40-150	30	40-150	30	30			
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	27619-97-2	0.8	0.28	ng/g	40-150	30	40-150	30	30			
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	0.2	0.0368	ng/g	40-150	30	40-150	30	30			
Perfluorononanoic Acid (PFNA)	375-95-1	0.2	0.0784	ng/g	40-150	30	40-150	30	30			
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	0.2	0.0792	ng/g	40-150	30	40-150	30	30			
Perfluorodecanoic Acid (PFDA)	335-76-2	0.2	0.0752	ng/g	40-150	30	40-150	30	30			
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	0.8	0.3872	ng/g	40-150	30	40-150	30	30			
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	0.2	0.0424	ng/g	40-150	30	40-150	30	30			
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSA)	2355-31-9	0.2	0.1	ng/g	40-150	30	40-150	30	30			
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	0.2	0.0512	ng/g	40-150	30	40-150	30	30			
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	0.2	0.032	ng/g	40-150	30	40-150	30	30			
Perfluorooctanesulfonamide (FOSA)	754-91-6	0.2	0.0432	ng/g	40-150	30	40-150	30	30			
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	0.2	0.0824	ng/g	40-150	30	40-150	30	30			
Perfluorododecanoic Acid (PFDoA)	307-55-1	0.2	0.0408	ng/g	40-150	30	40-150	30	30			
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	0.2	0.0528	ng/g	40-150	30	40-150	30	30			
Perfluorotetradecanoic Acid (PFTA)	376-06-7	0.2	0.1064	ng/g	40-150	30	40-150	30	30			
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-P-	13252-13-6	0.8	0.0984	ng/g	40-150	30	40-150	30	30			
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	919005-14-4	0.8	0.1464	ng/g	40-150	30	40-150	30	30			
Perfluorododecane Sulfonic Acid (PFDoDS)	79780-39-5	0.2	0.0384	ng/g	40-150	30	40-150	30	30			
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF	756426-58-1	0.8	0.196	ng/g	40-150	30	40-150	30	30			
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11C	763051-92-9	0.8	0.1672	ng/g	40-150	30	40-150	30	30			
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	31506-32-8	0.2	0.1	ng/g	40-150	30	40-150	30	30			
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	4151-50-2	0.2	0.112	ng/g	40-150	30	40-150	30	30			
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	24448-09-7	2	0.2504	ng/g	40-150	30	40-150	30	30			
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	1691-99-2	2	0.5104	ng/g	40-150	30	40-150	30	30			
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	377-73-1	0.4	0.0408	ng/g	40-150	30	40-150	30	30			
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	863090-89-5	0.4	0.0312	ng/g	40-150	30	40-150	30	30			
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	113507-82-7	0.4	0.0832	ng/g	40-150	30	40-150	30	30			
Nonafuoro-3,6-Dioxaheptanoic Acid (NFDHA)	151772-58-6	0.4	0.0952	ng/g	40-150	30	40-150	30	30			
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	356-02-5	1	0.144	ng/g	40-150	30	40-150	30	30			
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	914637-49-3	5	0.5048	ng/g	40-150	30	40-150	30	30			
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	812-70-4	5	1.76	ng/g	40-150	30	40-150	30	30			
Perfluoro[13C4]Butanoic Acid (MPFBA)	NONE									20-150		
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	NONE									20-150		

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C&S Companies

PFAAs via EPA 1633 (Draft) (SOIL)

Holding Time: 90 days
Container/Sample Preservation: 1 - Plastic 8oz unpreserved

[illegible]

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
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C&S Companies

Herbicides -EPA 8151A (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

[illegible]

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
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**QAPP Worksheet #12: Measurement Performance Criteria
(UFP-QAPP Manual Section 2.6.2)
(EPA 2106-G-05 Section 2.2.6)**

Laboratory: Alpha Analytical, Mansfield, MA
Matrix: Water/Solid
Analytical Group or Method: 1633 Draft
Concentration Level: LOW

Data Quality Indicator (DQI)	QC sample or measurement performance activity	Measurement Performance Criteria
Overall Precision	Field Duplicates (at client's request)	RPD $\leq$ 30% for target compounds > 5x RL
Analytical Precision (laboratory)	Laboratory Control Sample Duplicates	RPD $\leq$ 30%
Analytical Precision (laboratory)	Matrix Spike Duplicates (at client's request)	RPD $\leq$ 30%
Analytical Accuracy/Bias (laboratory)	Laboratory Control Samples	40-150%R or analyte-specific control limits
Analytical Accuracy/Bias (matrix interference)	Matrix Spike/Matrix Spike Duplicates (at client's request)	40-150%R or analyte-specific control limits
Accuracy/Extraction Efficiency	Surrogates	20-150%R or analyte-specific control limits
Overall Accuracy/Bias (contamination)	Method Blank	No target compounds $\geq$ RL
Sensitivity	Method Detection Limit	MDL < RL
Completeness	See Worksheet #34	See Worksheet #34

Laboratory: Alpha Analytical, Mansfield, MA
Matrix: Water/Solid
Analytical Group or Method: PFAS-Isotope Dilution, SOP 23528
Concentration Level: LOW

Data Quality Indicator (DQI)	QC sample or measurement performance activity	Measurement Performance Criteria
Overall Precision	Field Duplicates (at client's request)	RPD $\leq$ 30% for target compounds > 5x RL
Analytical Precision (laboratory)	Laboratory Duplicates	RPD $\leq$ 30%
Analytical Precision (laboratory)	Laboratory Control Sample Duplicate (LCSD) or Matrix Spike Duplicate (MSD) (at client's request)	RPD $\leq$ 30%
Analytical Accuracy/Bias (laboratory)	Laboratory Control Samples	50-150%R or analyte-specific control limits
Analytical Accuracy/Bias (matrix interference)	Matrix Spike/Matrix Spike Duplicates (at client's request)	50-150%R or analyte-specific control limits
Accuracy/Extraction Efficiency	Extracted Internal Standards	50-150%R or analyte-specific control limits
Overall Accuracy/Bias (contamination)	Method Blank and Field Reagent Blank	No target compounds $\geq$ RL
Sensitivity	Method Detection Limit	MDL < RL
Completeness	See Worksheet #34	See Worksheet #34

Laboratory: Alpha Analytical, Mansfield, MA
Matrix: Water, Soil, Biosolid, Tissue
Analytical Group: PFAS
Analytical Method/SOP: EPA 1633 Draft / SOP# 45852

QC Sample	Number/Frequency	Method/SOP Acceptance Criteria	Corrective Action	Title/position of person responsible for corrective action	Project-Specific MPC
Method Blank (MB)	One per preparatory batch of up to 20 samples	No analyte greater than the reporting limit.	Identify source and attempt to eliminate. Re-extract and/or reanalyze blank and affected samples (if sufficient sample remains). Qualify data as needed. Report data if sample results >5x blank or sample results ND. If contamination is widespread or reoccurring, analyses must be stopped and the source of contamination must be eliminated or reduced	Analyst/ Laboratory Quality Assurance Officer	

QC Sample	Number/Frequency	Method/SOP Acceptance Criteria	Corrective Action	Title/position of person responsible for corrective action	Project-Specific MPC
			before analyses can continue.		
Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD)	One each per preparatory batch of up to 20 samples. Alternate spiking concentration from batch to batch at a low, medium and high concentration.	50-150% recovery for the low LCS. 70-130% recovery for the medium and high LCS. RPD $\leq$ 50% for low LCS/LCSD. RPD $\leq$ 30% for medium/high LCS/LCSD.	Correct problem, reprep and reanalyze LCS and all samples in associated batch for failed analytes. If problem persists, contact Project Manager.	Analyst/ Laboratory Quality Assurance Officer	
Matrix Spike (MS)	One per preparatory batch of up to 20 samples. Alternate spiking concentration from batch to batch at a low, medium and high concentration.	50-150% recovery for the low LCS. 70-130% recovery for the medium and high LCS.	Report if associated with passing LCS and CCV. Discuss in narrative.	Laboratory Analyst/Section Supervisor	

QC Sample	Number/Frequency	Method/SOP Acceptance Criteria	Corrective Action	Title/position of person responsible for corrective action	Project-Specific MPC
Field Duplicate (D) or Matrix Spike Duplicate (MSD)	One per preparatory batch of up to 20 samples.	RPD $\leq$ 30% for compounds $>$ than 2x the RL. RPD $\leq$ 50% for compounds above the RL but $<$ than 2x the RL.	Evaluate during data validation.	Data validation staff	
Extracted Internal Standard (EIS)	All field samples and QC samples	50-150%	Check 1) calculations to locate possible errors, 2) standard solutions for degradation, 3) contamination, and 4) instrument performance. For CCVs and QC elements spiked with all target analytes, if the recovery of the corresponding target analytes meet the acceptance criteria for the EIS in question, the data can be used but all potential biases in the recovery of the EIS must be documented in the sample report. If the associated target analytes do not meet the acceptance criteria, the	Laboratory Analyst/Section Supervisor	

QC Sample	Number/Frequency	Method/SOP Acceptance Criteria	Corrective Action	Title/position of person responsible for corrective action	Project-Specific MPC
			data must be reanalyzed.		
Non- Extracted Internal Standard (NIS)	All field samples and QC samples	Calculate and record the mean areas for each NIS for use in evaluating results for sample analyses. There is no acceptance criterion associated with the mean NIS area data.	N/A	Laboratory Analyst/Section Supervisor	