# FINAL
# REMEDIAL INVESTIGATION/FEASIBILITY STUDY REPORT
# IRVINGTON RUGS AND CLEANERS
# SITE NO. 360175

**WORK ASSIGNMENT NO. D009809-28**

**Prepared for:**

## New York State Department of Environmental Conservation
**Albany, New York**

**Prepared by:**

**Earth Environment Engineering and Geology, P.C.**
**Portland, Maine**

**EEEG: No. 3616216144**

**JULY 2025**
**(REVISED NOVEMBER 2025)**

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July 2025
(Revised November 2025)

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*I, Charles R. Staples, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Remedial Investigation Report 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 that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.*

*I, Daniel Servetas, certify that I am currently a NYS licensed professional engineer and that this Feasibility Study Report 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 that all activities were performed in full accordance with the DER-approved scope of work and any DER-approved modifications.*

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## GLOSSARY OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| bgs | below ground surface |
| cis-1,2-DCE | cis-1,2-dichloroethene |
| COC | contaminants of concern |
| CSM | Conceptual Site Model |
| DER | Division of Environmental Remediation |
| DNAPL | dense non-aqueous phase liquid |
| DO | Dissolved Oxygen |
| DUSR | Data Usability Summary Report |
| EEEG | Earth and Environment Engineering and Geology, PC. |
| ELAP | Environmental Laboratory Approval Program |
| EC | Engineering Control |
| ESI | Ecosystems Strategies, Inc. |
| EWMI | Environmental Waste Minimization, Inc. |
| FAP | Field Activities Plan |
| FS | Feasibility Study |
| GHG | Greenhouse Gas |
| HASP | Health and Safety Plan |
| IC | Institutional Controls |
| IDW | investigation derived waste |
| ITRC | Interstate Technology and Regulatory Council |
| IRM | Interim Remedial Measure |
| ISCO | in situ chemical oxidation |
| LTM | Long-Term Monitoring |
| MACTEC | MACTEC Engineering and Geology, P.C. |
| MCL | maximum contaminant level |
| MNA | monitored natural attenuation |
| µg/kg | microgram(s) per kilogram |
| µg/L | microgram(s) per Liter |
| µg/$m^3$ | microgram(s) per cubic meter |
| mg/kg | milligram(s) per kilogram |
| msl | mean sea level |
| ng/kg | nanogram(s) per kilogram |
| ng/L | nanogram(s) per liter |
| NYCRR | New York Codes, Rules and Regulations |
| NYS | New York State |
| NYSDEC | New York State Department of Environmental Conservation |
| NYSDOH | New York State Department of Health |
| OMB | Office of Management and Budget |
| PCB | polychlorinated biphenyl |
| PCE | tetrachloroethene |
| PDI | Pre-Design Investigations |
| PFAS | per- and polyfluoroalkyl substances |
| PFOA | perfluorooctanoic acid |
| PFOS | perfluorooctane sulfonic acid |
| ppm | parts per million |
| PRB | Permeable Reactive Barrier |
| PW | Present Worth |
| QAPP | Quality Assurance Program Plan |

| | |
|---|---|
| QHHEA | Qualitative Human Health Exposure Assessment |
| RA | remedial alternative |
| RAO | remedial action objectives |
| RG | remediation goal |
| RI | Remedial Investigation |
| RMCA | Radon Mitigation Corporation of America |
| SC | Site Characterization |
| SCG | Standards, Criteria, and Guidance |
| SCO | Soil Cleanup Objective |
| Site | Irvington Rugs and Cleaners |
| SMP | Site Management Plan |
| SSDS | sub-slab depressurization system |
| SVI | soil vapor intrusion |
| SVOC | semi-volatile organic compound |
| TCE | trichloroethene |
| USDA | United States Department of Agriculture |
| USEPA | United States Environmental Protection Agency |
| VOC | Volatile Organic Compound |
| WA | Work Assignment |

## EXECUTIVE SUMMARY

This Remedial Investigation/Feasibility Study (RI/FS) Report has been completed for the Irvington Rugs and Cleaners Site (Site) located at 53 Main Street, in the Town of Greenburgh, New York under State Superfund Standby Contract Work Assignment D009809-28 (Site No. 360175). This RI/FS report provides the following information:

- Site description, history, and physical setting;
- technical scope of work for the RI field activities;
- presentation of RI data collected;
- interpretation of the RI findings;
- Conceptual Site Model (CSM) and contaminant fate and transport;
- Qualitative Human Health Exposure Assessment (QHHEA);
- development of remedial objectives; and
- evaluation of potential remedial alternatives (RAs) from an engineering, environmental, public health, and economic perspective.

The Site is located at 53 Main Street, in the Village of Irvington, Town of Greenburgh, Westchester County, New York and consists of a 0.06-acre lot covered by a one-story building and a paved parking area to the rear (north). The southern three quarters of the Site building has a full basement, and the northern one quarter is slab on grade. The Site operated as a dry cleaner from presumably 1965 to the present; however, the use of tetrachloroethene (PCE) at the Site as a dry-cleaning solvent was reportedly discontinued in 1990 (although an undisclosed quantity of PCE was removed from the facility in 2005).

The site is in a mixed use commercial and residential area that is serviced by public water and sewer.

Analytical data collected from investigations to date indicates that the volatile organic compound (VOC) PCE was discharged at the Site. There appears to be two primary source areas of PCE contamination: 1) soil in the parking area to the rear, north, of the Site building that was remediated by excavation prior to the sites listing on the inactive hazardous waste disposal program registry, and 2) contamination in soil/groundwater below the center of the Site. The highest concentration detected in soil was only 5.6 milligrams per kilogram (mg/kg) compared to a residential use criteria of 5.5 mg/kg. This detection was in soil collected below the water table and beneath the property building adjacent to the Site and may represent groundwater contamination. Entry points to the environment in the source areas likely included spills/discharges to the ground on the north side of the building, and release of dry-cleaning solvents to the floor of the building, which entered the environment through floor cracks and/or the basement sump.

This contamination has migrated to groundwater and PCE and its breakdown products trichloroethene (TCE) and cis-1,2-dichloroethene (cis-1,2-DCE) were detected in groundwater at and downgradient of the Site at concentrations above groundwater standards. PCE was the primary contaminant identified above its Standards, Criteria, and Guidance (SCG) value, with two apparent groundwater plumes: one smaller plume originating from the previously excavated area located to the rear (north) of the Site building (maximum concentration of PCE of 21.9 micrograms per liter [µg/L] detected during the Site Characterization [SC]) and extending approximately 50 feet west to North Dutcher Street, and one plume originating from under the center of the Site building and extending approximately 180 feet to the southwest at concentrations above standards. The highest concentration of PCE detected in the groundwater plume originating from below the site building, 2,500 µg/L, was on 49 Main Street. VOC groundwater contamination was present in the shallow groundwater, which primarily exists in overburden, although the bedrock surface is uneven and the water table drops below the top of bedrock surface in some locations downgradient of the Site where the bedrock rises closer to the ground surface.

The VOCs in soil and groundwater have the potential to migrate into nearby buildings by soil vapor intrusion (SVI). SVI sampling has been conducted at the Site building and at five off-site buildings. Based on the sampling results, sub-slab depressurization systems (SSDSs) were installed at two off-site mixed use (commercial/residential) buildings to mitigate the potential for SVI. Based on a review of the SVI data, the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH) determined that SVI is not a concern for the other off-Site buildings sampled. SVI sampling results at the Site building in 2019 during the SC showed PCE in the indoor air at concentrations above NYSDOH guidance values which appeared at the time to be the result of vapor intrusion. However, results from additional soil vapor and indoor air samples collected in 2025 were below NYSDOH guidance values and indicated no further action is needed to mitigate potential vapor intrusion (EEEG, 2025b). It is possible that an unidentified product containing PCE was present in the dry cleaner in 2019 that has since been removed..

Per-and polyfluoroalkyl substances (PFAS) contamination was also identified in soil and groundwater at the Site and at the neighboring property during the RI. The source of PFAS is potentially the result of air deposition from dryer vents, or from discharges of PFAS contaminated wastewater. Concentrations of PFAS (primarily perfluorooctane sulfonic acid [PFOS]) in soil were detected at concentrations above protection of groundwater and residential use soil cleanup objectives (SCOs) below the driveway of the Site and in the fenced-in yard of 49 Main Street; however, background soil samples also exceeded the protection of groundwater SCO. The highest concentration of PFOS was 22 micrograms per kilogram

(µg/kg) at a depth of two to three feet below ground surface (bgs), compared to a residential use criteria of 8.8 µg/kg.

PFAS contamination in soil has migrated to groundwater, with the highest concentrations detected near the rear (north) of the Site building and flowing primarily to the southwest. The highest concentration of Perfluorooctanoic acid (PFOA) detected was 95 nanograms per liter (ng/L) compared to a maximum contaminant level (MCL) of 10 ng/L and guidance value of 6.7 ng/L. PFOA was also detected in groundwater upgradient of the Site during the SC at a concentration of 18 ng/L. The plume of PFOA interpreted to be originating from the Site and exceeding upgradient concentrations, based on an upgradient temporary well DP-07, is anticipated to extend approximately 300 feet southwest from the rear of the Site building. The highest concentration of PFOS detected during the RI was 331 ng/L, compared to an MCL of 10 ng/L and guidance value of 2.7 ng/L. PFOS was also detected in groundwater upgradient of the Site during the SC at a concentration of 6.1 ng/L. The plume of PFOS originating from the Site and exceeding upgradient concentrations is anticipated to be slightly larger than the PFOA plume, extending more than 300 feet southwest from the rear of the Site building.

Potential exposure to VOC and/or PFAS contamination at the Site at concentrations above guidance values could result from contact with:

- contaminated subsurface soils during construction activities;
- contaminated groundwater via construction, excavation, or withdrawal; and
- soil vapor via migration into the on-Site building (VOCs only).

Following completion of the RI, screening of technologies was conducted to evaluate options to address the groundwater and soil impacts at the site. Screened technologies were used to develop remedial alternatives for further evaluation. Cost estimates and a comparison of alternatives against nine evaluation criteria was conducted for each of the alternatives. The remedial alternative evaluated included:

1) Alternative 1 – No Action. No additional action would be taken to address site impacts.
2) Alternative 2 – Soil Excavation with In-Situ Sorption, In-Situ Chemical Reduction, and Enhanced Bioremediation in Groundwater. This alternative would address: PFAS impacts in soil by removal of PFAS soil to meet background concentration; PFAS impacts in groundwater by in-situ sorption to minimize further migration; and VOC impacts in groundwater with combined in-situ chemical reduction and enhanced bioremediation within the footprint of the 49 and 53 Main Street Buildings and downgradient of these properties.

3) Alternative 3a and 3b – Soil Excavation with In-Situ Chemical Oxidation (ISCO) (Alternative A) or enhanced bioremediation (Alternative B). This alternative would address PFAS impacts in soil by removal of PFAS-impacted soil to meet residential standards, thus reducing the source of PFAS impacts but does not directly address current PFAS in groundwater. This Alternative would also address VOC impacts in groundwater within the footprint of the 49 and 53 Main Street buildings with ISCO (Alternative A) or with in-situ enhanced bioremediation (Alternative B) to reduce the VOC source area and resulting soil vapor intrusion impacts.
4) Alternative 4a and 4b – Low Permeability Cover with ISCO (Alternative A) or Enhanced Bioremediation (Alternative B). This alternative would address direct exposure to PFAS impacts in soil and reduce PFAS impacts to groundwater by installing a low permeability cover over PFAS impacted soil. VOC impacts in groundwater would be addressed similarly to Alternatives 3a and 3b.
5) Alternative 5 – This alternative would include ISCO to address VOCs in groundwater within the footprint of the 49 and 53 Main Street buildings below buildings (similar to Alternative 3A and 4A), and Enhanced Bioremediation to address VOCs in groundwater in the Northern Plume. PFAS impacts in soil or groundwater would not be addressed.
6) Alternative 6 – Monitored Natural Attenuation. This alternative would rely on natural attenuation to address VOC impacted groundwater and would not address PFAS impacts in soil or groundwater. Periodic monitoring would be conducted to evaluate progress. –

## 1.0 INTRODUCTION

This Remedial Investigation/Feasibility Study (RI/FS) report (Report) has been prepared by Earth Environment Engineering and Geology, P.C. (EEEG; Formerly MACTEC Engineering and Geology, PC [MACTEC]) in response to Work Assignment (WA) No. D009809-28 dated March 16, 2021 from the New York State (NYS) Department of Environmental Conservation (NYSDEC) for the Irvington Rugs and Cleaners Site (Site) in the Town of Greenburgh, New York (**Figure 1.1**) (NYSDEC, 2021) and in accordance with the July 2020 Superfund Standby Contract between MACTEC and the NYSDEC.

The Site (Site No. 360175) is currently listed as a Class 2 site (i.e., poses a significant threat to the public health or environment) by the NYSDEC. WA No. D009809-28 was issued to conduct an RI and FS for the Site.

The classification of the Site stems from the results of the 2020 site characterization (SC) conducted at the Site by EEEG (conducted on behalf of the NYSDEC) (MACTEC, 2020a), as well as investigations previously conducted by the Site owner. Existing Site data was not sufficient to fully characterize the Site and therefore the RI was performed.

The RI/FS for the Site was conducted in accordance with applicable portions of the following documents:

- NYSDEC Division of Environmental Remediation (DER)-10 "Technical Guidance for Site Investigation and Remediation" (NYSDEC, 2010);
- 6 New York Codes, Rules and Regulations (NYCRR) Part 375 "Environmental Remediation Programs";
- Sampling, Analysis, and Assessment of PFAS (NYSDEC, 2022a, 2022 b, and.2023); and
- NYS Department of Health (NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion (SVI) in the State of New York" (NYSDOH, 2006).
    - Updates to Soil Vapor/Indoor Air Matrices (NYSDOH, 2017, 2024).

NYSDEC determined that the Site poses a potential significant threat to public health and the environment as defined in 6 NYCRR 375 based on the presence of contaminants in soil, groundwater and soil vapor/indoor air (NYS, 2006).

This Report presents the technical scope of work implemented for the RI field activities, presents the results of data collected, and includes an update to the Conceptual Site Model (CSM). The FS develops remedial objectives and evaluates potential RAs from an engineering, environmental, public health, sustainability and economic perspective and develops a preferred alternative.

## 1.1 REPORT ORGANIZTION

The RI/FS report is structured in general accordance with the NYSDEC DER-10 Guidance (NYSDEC, 2010). The RI/FS includes **Sections 1.0 to 12.0**, and associated Appendices. The RI portions of the report consist of **Sections 1.0 to 7.0**, outlined below.

Section 1.0: Discusses the purpose of the RI, Site history and previous investigations.

Section 2.0: Presents the specific scope of work for the RI.

Section 3.0: Summarizes the physical characteristics of the Site and surrounding area. This includes results of physical characteristics as determined during the RI field program.

Section 4.0: Presents results of analytical data and discusses the nature and extent of contamination.

Section 5.0: Presents the CSM and discusses the fate and transport of the Site contaminants.

Section 6.0: Presents the Qualitative Human Health Exposure Assessment (QHHEA).

Section 7.0 Presents the summary and conclusions of the RI.

The FS portions of the Report consist of **Sections 8.0 to 11.0**, outlined below.

Section.8.0: Discusses the development of remedial action objectives (RAOs), the general response actions, and the contamination requiring remediation.

Section 9.0: Discusses the identification and screening of applicable remedial technologies.

Section 10.0: Presents a detailed description of the various alternatives.

Section 11.0: Presents a detailed analysis and comparison of the various alternatives' relative performance against select criteria. The purpose of the comparative analysis is to identify the advantages and disadvantages of each alternative relative to one another to aid in selecting a remedy for the Site.

Section 12.0 contains references.

The Report is supplemented by the following attached documents:

- Appendix A: Select Site Characterization Report Tables and Figures
- Appendix B: Waste Disposal Documentation
- Appendix C: Survey Deliverables
- Appendix D: Field Data Records
- Appendix E: Climate Screening Checklist
- Appendix F: Data Usability Summary Reports (DUSRs)
- Appendix G Remedial Alternative Cost Details
- Appendix H Remedial Activity Green House Gas Emissions

## 1.2 PURPOSE OF RI/FS

The purpose of this RI is to evaluate the nature and extent of contamination associated with the Site, and to identify contaminant migration pathways with the potential to impact human health and the environment. The FS develops RAOs and identifies and evaluates potential remedies from an engineering, environmental, public health, sustainability and economic perspective.

## 1.3 SITE BACKGROUND

Information pertaining to the history of Site operations and past releases of contamination that were supplied by the NYSDEC and/or collected previously by EEEG was reviewed and used to prepare the RI/FS Field Activities Plan (FAP) for the field investigation. The observations from previous site field work, information collected, as well as information provided in the work assignment (WA), are summarized below.

The Site background is discussed in the following sub-sections. Background information was primarily based on reports from previous investigations (see **Section 1.3.3**).

### 1.3.1 Site Location and Description

The Site is located at 53 Main Street, in the Village of Irvington, Town of Greenburgh, Westchester County, New York (Tax Map and Lot: 2.50-20-11). The Site property consists of approximately 0.06 acres in the historic downtown district.

The property is covered mostly by a one-story building that shares walls with buildings on properties to the east and west of the Site. The southern three quarters of the Site building has a full basement, and the northern one quarter is slab on grade. The area of the Site to the rear (north) of the Site building is paved. The paved portion of the property is accessed from a driveway located on the property to the west.

The site is surrounded by mixed use commercial and residential properties and the surrounding area is serviced by public water and sewer. The Village of Irvington sanitary sewer lines were installed circa 1890 and are separate from the storm sewer. Sanitary sewage has been treated since the 1950's, originally by a village owned treatment plant, but has been pumped since 1971 from a pump station located at the intersection of Main Street and South Buckhout Street to a county treatment plant in Yonkers. The sanitary sewer line below North Dutcher Street is 8-inch diameter, and it flows to an 8-inch line that runs down Main Street; the depth of the lines at this intersection is 7.5 feet bgs.

### 1.3.2 Site History

It is not known when the Site was first developed, but the Village of Irvington historic downtown street layout was designed in the 1850s (Irvington Historical Society, 2018). Various buildings were present on the property in the early 1900's, and the southern portion of the current Site building may have been constructed as early as 1905 (Ecosystems Strategies, Inc. [ESI], 2005). It is not known when the Site was first used for dry cleaning services. However, the previous owner of the property, and founder of the Irvington Rugs and Cleaners business, purchased the property in 1965 (according to the Town of Greensburgh property card) and it is assumed that dry cleaning services began around this time. The previous owner reportedly stopped active dry cleaning at the property in approximately 1990 (the site was a drop off location only from 1990 until the property sold in 2006); however, an unknown quantity of polychlorinated biphenyl (PCE) was removed from the property around September 2005 (ESI, 2005). The current owner, who purchased the property in 2006, stated that they installed a second-generation hydrocarbon dry cleaning machine that used "Easy Clean" as a solvent (non-chlorinated solvent). Discussions with the property owner in February 2025, indicated that the dry cleaning solvents currently used at the property include DF-2000, a petroleum based solvent made by ExxonMobil Chemical Company, and spot cleaners Prenett A-B-C, Prenett CS and ClipComfort, by Kruessler, Inc. (none of which contain chlorinated compounds according to their safety data sheets). The property continues to operate as a dry-cleaning facility.

### 1.3.3 Previous Field Investigations

Several investigations have been conducted at or adjacent to the Site, as described below.

In preparation for the sale of the property in 2006, Phase I and II Environmental Site Assessment activities were performed on the Site by ESI (ESI, 2005 and ESI, 2006a). The assessments identified concentrations of PCE and other halogenated volatile organic compounds (VOCs) in soil, groundwater and soil vapor samples collected beneath the Site's building foundation and parking area. The assessment concluded that the soils beneath the site parking area were impacted by PCE at concentrations greater than guidance values (maximum concentration of 3.3 milligrams per kilogram [mg/kg] compared to the guidance value at the time [Technical Administration Guidance Memorandum 4043] of 1.3 mg/kg). VOCs were also detected in groundwater at concentrations above the NYS standard of 5 µg/L including:

- PCE (600 µg/L),
- TCE (440 µg/L), and
- cis-1,2-DCE (1,200 µg/L).

PCE was detected in soil vapor collected beneath the Site parking lot and below the slab on grade portion of the Site building at concentrations of 53,800 micrograms per cubic meter (µg/$m^3$), and 1,450 µg/$m^3$, respectively.

Based on these investigations, soil was excavated in April 2006 from the Site parking lot in an area approximately 21 feet long, 12 feet wide, and 5 feet deep and shipped to a licensed disposal facility. Results of five confirmation soil samples collected were below the current NYS protection of groundwater standard for PCE of 1.3 mg/kg (ESI, 2006b). One groundwater sample was also collected in the vicinity of the excavation in May 2006 and analyzed for VOCs; PCE (28 µg/L) was the only compound detected (ESI, 2006c).

In 2015 Enviro-Sciences of Delaware, Inc. collected two near slab soil vapor samples and two groundwater samples for VOC analysis from 49 Main Street which is located adjacent to the site to the west. PCE was detected in the soil vapor at a maximum concentration of 1,410 µg/$m^3$ (collected from NS-1, located near the exterior basement stairs) and in groundwater at a maximum concentration of 160 µg/L (collected from TP-2, located at the approximate location of the SC/RI DP-05 sample location) (Enviro-Sciences, 2015).

In 2016, ten (10) indoor air samples, one roof air sample, and one ambient (background) air sample from 49 Main Street were collected and analyzed for VOCs. VOCs were only detected in the indoor air samples. The maximum indoor air concentration detected for PCE was 60.1 µg/m$^3$ in the basement. Indoor air samples were re-collected in February 2018, with a maximum indoor air concentration for PCE of 15.2 µg/m$^3$ in Apartment 6, located on the third floor (Enviro-Sciences, 2018) (this third-floor air concentration was later determined to be the result of air traveling from the basement to the third floor via a former dumb waiter shaft (MACTEC, 2020a).

EEEG, under contract to the NYSDEC completed a SC in 2020 (MACTEC, 2020a). The SC investigation consisted of soil, groundwater, soil vapor, and basement sump water sampling. Select Figures and Tables from the SC report are included in **Appendix A** and include:

- Figure A.1 Basement and Exterior Sample Locations
- Figure A.2 Groundwater Contours
- Figure A.3 PCE Groundwater Results
- Figure A.4 PCE Soil Vapor Results
- Table A.1 Soil VOC Results
- Table A.2 Groundwater VOC Results
- Table A.3 Emerging Contaminants in Groundwater

The SC investigation did not identify a soil source at the site. PCE and its breakdown products were not detected in the soil samples collected, with the exception of one detection below the Title 6 NYCRR Part 375 Soil Cleanup Objectives (SCOs) in a sample collected beneath the basement floor of the Site. Although limited soil sampling was conducted for this SC, based on these and previous soil sample results, it was concluded that the soil removal action in the rear of the dry cleaner was sufficient to remediate soils in this area to meet the SCOs for unrestricted use.

The SC identified two separate areas that exceeded the NYS groundwater standards. PCE (21.9 µg/L), TCE (6.4 µg/L), and cis-1,2-DCE (6.2 µg/L) were detected in groundwater at one location, collected from beneath the parking area which was likely the result of the previously identified spills. VOC concentrations decreased to the southwest of this location.

The second area was beneath the buildings at the Site and 49 Main Street. PCE was detected in samples from the sump within the Site building and groundwater from beneath the basement slab at 49 Main Street at concentrations exceeding the fresh groundwater (Class GA) standard. The highest concentration of PCE in groundwater was detected in the Site's basement sump (154 µg/L) (the sump water is interpreted to be groundwater). The concentrations exceeding standards extend west under the adjacent structure at 49 Main Street.

In addition to PCE and its breakdown products, per- and polyfluoroalkyl substances (PFAS) was detected in groundwater at the Site at concentrations above the NYS standards. Maximum concentrations of perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) were 480 nanograms per liter (ng/L), and 95 ng/L, respectively. PFOS and PFOA were also detected in an upgradient sample at concentrations of 6.1 ng/L and 18 ng/L, respectively.

The highest detection of PCE in water (425 µg/L) was in a sample collected from an apparent vertical cast iron floor drainpipe located at the bottom of a brick floor drain/sump in the basement of 49 Main Street. The SC speculated that this contamination originated at the Site, but the source of PCE was not identified and there were no apparent pipes leading into this brick floor drain/sump. Concentrations of PCE within this pipe were at least an order of magnitude higher than the nearby groundwater sample concentrations.

The SC also identified PCE in the indoor air in both the Site building and the 49 Main Street building at concentrations greater than the NYSDOH guidance value of 30 µg/$m^3$. The highest indoor air concentrations were detected in a sample collected from within a flux-chamber placed over the floor drain/sump located in 49 Main Street. A source of indoor air contamination was not identified in the SC.

Based on the findings of the SC, the RI was conducted to further evaluate the nature and extent of contamination.

## 2.0 SCOPE OF WORK

To assess the potential for the Site to pose a threat to public health and the environment as defined in 6 NYCRR 375 (NYS, 2006), an RI was performed. Based on historical data, the RI was performed with the following technical objectives:

- Geophysical survey to clear borings for utilities, as well as to evaluate potential sub-slab piping at 49 Main Street.
- Installation of temporary microwells to evaluate groundwater flow direction.
- Collection of groundwater samples from existing and temporary wells to evaluate extent of potential groundwater contamination, including chlorinated compounds and PFAS.
- Collection of sump water samples to evaluate concentrations of contaminants in basement water.
- Collection of exterior, off-site soil vapor samples to evaluate the potential for vapor migration of site related contaminants.
- Completion of a horizonal and elevation survey of the temporary microwells to evaluate groundwater flow direction.
- Installation and sampling of one bedrock groundwater well at the Site to evaluate the potential for deeper groundwater contamination.
- Collection of surface and subsurface soil samples with hand probe and direct push rig for PFAS analysis to evaluate the extent of PFAS soil contamination.
- Removal of contaminated sediment and water from the dry sump and depression within the basement of 49 Main Street to prevent potential exposure.
- Collection of soil and water samples from below the dry sump and slab of 49 Main Street to evaluate for potential soil and groundwater contamination of site-related contaminants.
- Collection of soil vapor and indoor air samples at four properties (including 49 Main Street), based on exterior soil vapor and groundwater results and approved property access to evaluate for potential SVI.

In addition, based on soil vapor and indoor air sampling results, sub-slab depressurization systems (SSDSs) were installed at two off-site properties as interim remedial measures (IRMs) to prevent vapor intrusion into the indoor air.

Additional activities conducted after the RI field work above and reported under separate cover, but discussed briefly in this report, include:

- Conducting a Pre-Design Investigation (PDI) in August 2024 to evaluate the potential to conduct injections under 49 and 53 Main street as part of the remedy, and collection of additional soil and groundwater samples below 49 Main Street to evaluate depth of overburden contamination (EEEG, 2025a).
- Collection of SVI samples at 53 Main Street in 2025 to assess current SVI conditions (EEEG, 2025b).

To meet the technical objectives outlined above, the investigations outlined in **Table 2.1** were conducted.

The RI fieldwork was conducted in accordance with the specifications presented in the Quality Assurance Program Plan (QAPP) (MACTEC, 2020b) and the Site-specific FAP (MACTEC, 2022a) and FAP addendums (MACTEC, 2022b, MACTEC, 2023a, and MACTEC 2024a). The following subcontractors were used during the RI:

- Aztech Technologies (standby direct push) from Ballston Spa, New York.
- Lawson Surveying and Mapping (site survey) from Oneonta, New York.
- Utility Survey, Inc./Blood Hound (utility clearance).
- Environmental Waste Minimization, Inc. (EWMI) (transportation and disposal of investigation derived waste [IDW]).
- Pace Analytical/Contest (Laboratory analysis provided under direct contract to the NYSDEC).
- Eurofins (conducted some of the PFAS and soil vapor/indoor air sample analysis under contract to EEEG).
- Radon Mitigation Corporation of America (RMCA) (SSDS installation)

Laboratory analysis complied with published protocols.

General field activities, including mobilization, health and safety, and decontamination, are described in the following subsections.

## 2.1 GENERAL FIELD ACTIVITIES

The field activities completed, including mobilizations, health and safety, decontamination, sampling procedures and any other relevant activities are described in the following subsections. Upon approval of the Site FAP, EEEG and its subcontractors mobilized to the Site and conducted RI fieldwork activities.

The EEEG RI Field Team and project manager performed a video conference prior to each mobilization to familiarize themselves with the site and goals of each step of the investigation.

### 2.1.1 Health and Safety

RI fieldwork was conducted at a Level D protection level and in compliance with the Site-Specific Health and Safety Plan (HASP) included in the FAP (MACTEC, 2022a). Prior to any fieldwork, daily health and safety meetings were conducted.

### 2.1.2 Investigation Derived Wastes

IDW generated during this RI was disposed of as appropriate based upon whether the wastes are considered municipal or non-hazardous for disposal/treatment. Used disposable equipment and protective clothing were double bagged in polyethylene trash bags and disposed of as non-hazardous refuse. Transport and disposal of these containers was completed by EWMI and arranged by EEEG on behalf of NYSDEC. Purge water generated during groundwater sampling and well development was containerized. Soil drill cuttings generated during monitoring well installation were containerized. Two drums of purge water/sump pit water and one drum of drill cuttings and basement depression sediment were removed from the Site; soil/sediment was disposed of as non-hazardous waste soil by EWMI based on analytical data (**Appendix B**).

### 2.1.3 Community Air Monitoring Plan

Investigation techniques were used that minimized the potential for dust and air contamination. Sampling was conducted using direct push technology, which does not generally produce dust, and the rock coring was completed using water to prevent dust. Visible dust was not observed during the field program. VOC air monitoring was conducted at the location of the subsurface work using a RAE Systems MiniRAE 2000 photoionization detector. VOC readings at the drilling/subsurface sampling locations did not exceed the action level of five parts per million (ppm) above background at any time during field work.

### 2.1.4 Well and Sample Point Survey

Upon completion of the installations of the temporary microwells, Lawson Surveying and Mapping completed a survey of the microwells. Horizontal and vertical locations were then presented to EEEG in excel format to be used with geographic information system software. Horizontal locations are tied to the NYS Plane Coordinate System using North American Datum of 1983 and measured to an accuracy of 0.1 feet. Vertical elevations of groundwater wells were tied to mean sea level (msl), using North

American Vertical Datum of 1988, and measured to an accuracy of 0.01 feet. In addition, Lawson Surveying and Mapping surveyed the horizontal locations of the exterior soil vapor sample locations. The Survey Deliverables are included in **Appendix C**. Because the bedrock well was installed at a later date, the horizontal location was measured in the field by the field crew and no formal survey was conducted. The soil sample and indoor sample locations were measured in the field by the field crew using three-point ties.

### 2.1.5 DER-31

During the course of the RI field activities, EEEG considered NYSDEC DER-31 implementation objectives (NYSDEC, 2011). The NYSDEC DER's approach to remediating Sites in the context of the larger environment is a concept known as "Green Remediation". The approach is intended to improve the overall sustainability of the investigation by promoting the use of more sustainable practices and technologies. Green Remediation practices and technologies are less disruptive to the environment, generate less IDW, increase reuse and recycling, and emit fewer pollutants, including greenhouse gases (GHGs), to the atmosphere. Green Remediation concepts and techniques were used during the RI/FS investigation field events, including:

- Completing the majority of soil investigations using direct push technologies rather than using Hollow Stem Auger techniques:
    - Reducing emissions to the atmosphere, and reducing IDW
- Using staff local to the Site, carpooling and eliminating idling/using vehicles when possible
    - Reducing emissions to the atmosphere
- Planning sampling events to maximize level of effort while traveling to/from the Site
    - Economy of scale implementing multiple sampling events

### 2.1.6 Laboratory Analysis

Laboratory analysis for most of the samples were provided under direct contract to the NYSDEC with Pace Analytical, a laboratory certified under the Environmental Laboratory Approval Program (ELAP). Some of the soil vapor/indoor air samples and PFAS soil samples were analyzed by Eurofins, an ELAP-certified laboratory under contract to EEEG. Samples collected were analyzed using the methods below. Pace Analytical and Eurofins provided results as NYSDEC Category B Deliverables.

For soil samples, the following methods were used:

- VOCs by United States Environmental Protection Agency (USEPA) Method 8260
- PFAS by Modified USEPA Method 537 and USEPA Method 1633

For groundwater samples, the following methods were used:

- VOCs by USEPA Method 8260
- Semi-Volatile Organic Compounds (SVOCs) by USEPA Method 8270
- Pesticides by USEPA Methods 8081
- Polychlorinated biphenyls (PCBs) by USEPA Method 8082
- Metals (target analyte list plus mercury) by USEPA Methods 6010/7470
- PFAS by Modified USEPA Method 537 and USEPA Method 1633

For Soil Vapor and Indoor Air samples, the following methods were used:

- VOCs by USEPA Method TO-15

### 2.1.7 Mobilization

Mobilization included obtaining utility clearances for all proposed locations, procurement of subcontractors, and the acquisition and coordination of supplies. The NYSDEC was responsible for obtaining access agreements to the site and all offsite locations, while EEEG was responsible for obtaining any road opening permits and parking permits from the Village of Irvington.

### 2.1.8 Access and Clearance

EEEG acquired a road opening permit from the Village of Irvington for all borings located within the public right of way. For Private Property access, EEEG coordinated with NYSDEC and respective property owners. EEEG then had a public and private utility mark-out conducted by Dig Safety NY and Utility Survey, Inc/Blood Hound respectively. Blood Hound also evaluated the potential for sub-slab piping at 49 Main Street and the potential path of the pipe run associated within the dry sump in 49 Main Street to evaluate if it connects to the municipal sewer.

In addition to the utility locates, the drilling subcontractor cleared the exterior microwell locations by soft digging and air-vacuuming to five feet bgs, if possible.

### 2.1.9 Decontamination

Sampling methods and equipment for this field program were chosen to minimize decontamination requirements, mitigating potential for cross contamination. Disposable sampling equipment was used as much as practical to minimize decontamination time and water disposal. Non-disposable sampling equipment was decontaminated before and after the collection of each sample.

Non disposable sampling equipment was decontaminated by washing the sample collection equipment with potable water and Alquinox, rinsing with potable water, rinsing with deionized water, and then allowing the equipment to air dry. Drilling equipment was decontaminated by steam cleaning with potable water prior to each boring and before leaving the Site. Drilling equipment (i.e. drill rods and casing) was decontaminated on a temporary decontamination pad constructed at the Site. Decontamination fluid was containerized for off-site disposal at a licensed facility.

## 2.2 FIELD PROGRAM SAMPLING

Fieldwork was conducted in the manner described in the following subsections. Fieldwork was conducted in accordance with specifications presented in the QAPP (MACTEC, 2020b).

### 2.2.1 Temporary Direct Push Microwell Installation and Sampling

To better evaluate groundwater contaminant concentrations and distribution in overburden groundwater, as well as groundwater flow downgradient, EEEG oversaw the installation of 8 temporary monitoring wells. Two of the proposed 10 microwells (DP-13 and DP-14, located on South Cottenet Street), were unable to be completed due to cobbles/refusal and utilities in the target area. Completed microwell locations are shown on **Figure 2.1** (although dry at refusal, location of DP-14 also shown since it was used as GV-14 location). The microwells were constructed with schedule 40 polyvinyl chloride, with up to 10-foot lengths of 0.01-inch machine slotted well screens. The microwells were installed with the bottom of the well screens set between 7 and 15 feet bgs. All microwells were presumably set on top of rock (direct push refusal), except for DP-5 (set at 15 feet bgs with no direct push refusal). Well installation logs are included in **Appendix D**. Well details are also included on **Table 2.2**.

Once installed, the temporary microwells were sampled at a low flow rate (e.g., 150 milliliters per minute) using grab sample techniques. Although newly installed microwells are considered fresh groundwater, one well volume was purged prior to collecting the sample, if possible. Groundwater samples were analyzed for VOCs and at four locations for PFAS. Although the temporary microwells were originally installed and sampled at the end of March 2022, the VOC samples needed to be recollected using the same methods and locations at the end of May 2022. Water levels were slightly lower in May and a VOC sample was not able to be collected from DP-09.

### 2.2.2 Water Level Measurements

Water levels were measured between March 23-25, 2022, from existing monitoring wells and temporary microwells to evaluate groundwater flow direction. Water levels are presented in **Table 2.2**.

### 2.2.3 Existing Well Groundwater Sampling

Groundwater samples were collected from the three existing monitoring well/microwell locations in March and June 2022 using low-flow sampling procedures (DP-02, DP-04, and DP-05).

Field measurements for pH, temperature, specific conductivity, oxidation reduction potential, dissolved oxygen (DO), and turbidity were collected at each monitoring well during pre-sample purging to evaluate well stabilization, as well as to provide information for evaluating geochemical parameters. Field measurements and monitoring well sampling activities were documented using a Low Flow Groundwater Data Record (**Appendix D**).

Purge water was containerized and stored on-Site in 55-gallon drums for disposal at a licensed facility.

Groundwater samples from permanent monitoring wells installed March 2022 were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals (target analyte list plus mercury), and in June 2023 for PFAS.

Additional groundwater samples were collected in March 2024 from DP-04 for analysis of PFAS.

### 2.2.4 Bedrock Well Installation and Sampling

Due to the identification of shallow bedrock at the Site (i.e., less than 20 feet bgs) and the concern that if the PCE was present as a dense non-aqueous phase liquid (DNAPL) it could migrate deeper and affect bedrock groundwater, one bedrock well (MW-3D) was installed to the rear (north) of the Site facility in June 2022 (**Figure 2.1**). MW-3D was installed at the location of temporary well DP-03, which was installed and sampled during the SC. The well was installed using Hollow Stem Auger to bedrock at 19 feet bgs, then coring using water to a depth of 29 feet bgs. The bedrock well was set with a five-foot screen from approximately 21 to 26 feet bgs (bottom three feet of boring caved in during well installation), with sand up to 19 feet bgs, and a one-foot bentonite seal at the overburden/bedrock interface. The well was developed using pump and surge techniques.

The well was sampled in June 2022 for VOCs and PFAS and again in March 2024 for PFAS using low flow sampling procedures.

### 2.2.5 Exterior Soil Vapor Sampling

Nine temporary soil vapor sample points were installed at depths up to 5 feet bgs and co-located within five feet of the temporary microwells using push point samplers (GV-08 to GV-12 and GV-14 to GV-17) (**Figure 2.1**) (Sample GV-13 could not be completed due to utilities). The ¼-inch outside diameter push points with 1-inch screens were pushed to depths of four to five feet bgs and sealed at the surface with hydrated bentonite and modeling clay. Helium leak testing was completed along with collecting soil vapor samples for VOC (EPA Method TO-15) analysis. The soil vapor sample locations were surveyed by Lawson Surveying and Mapping (GV-14 was located at DP-14 location).

### 2.2.6 Sump Water Sampling

Water samples were collected from the basement sumps located at the Site, at 49 Main Street (DW-02), at 47 Main Street (DW-05), and at 45 Main Street (DW-06) for analysis of VOCs (**Figure 2.1**). Samples were collected with ¼ inch high-density polyethylene and silicon tubing connected to a peristaltic pump to fill sample vials.

An additional sump water sample was collected from 45 Main Street (DW-06) for analysis of PFAS. The PFAS sample container was dipped into the sump water after emptying the sump and allowing it to recharge; care was taken to not allow the bottle to overfill.

### 2.2.7 PFAS Soil Sampling

Based on the detection of PFAS in the groundwater samples collected in 2022, soil sampling was conducted at the Site and 49 Main Street to identify a potential source(s).

Twelve samples were collected with hand augers from the ground surface to depths up to two feet bgs at four locations (SB-01 to SB-04) in September 2022 and analyzed for PFAS.

Based on the results of the 2022 soil sampling, an additional 30 soil samples were collected at depths up to 6 feet bgs from 10 locations using hand augers and direct push technology in October 2023 and analyzed for PFAS (SB-1A to SB-4A and SB-5 to SB-10). PFAS soil sample locations are presented on **Figure 2.2**.

### 2.2.8 Indoor Air and Sub-Slab Soil Vapor Intrusion Sampling

Soil vapor and indoor air samples were collected from the Site and two off-Site buildings during the SC. Based on these results, the NYSDEC and NYSDOH determined that additional off-site properties should be sampled to evaluate if contaminants of concern (COCs) from the Site are migrating off-Site in groundwater and creating a potential exposure pathway via vapor intrusion. Indoor air and sub-slab soil vapor samples were collected from three additional properties west of the Site in 2022. Samples were obtained over an approximate 24-hour period (flow rate was less than 0.2 liters per minute as required by NYSDOH and collected per the NYSDOH guidance [NYSDOH, 2024]). Two of the off-site properties were resampled in 2023.

Based on the construction of the building evaluated (e.g., presence of a concrete slab or dirt floor), one sub-slab soil vapor sample and one basement air sample were collected from one of the properties, and one basement air and one first floor air sample were collected at the remaining two properties, along with one ambient air background sample per 24-hour sample period. One duplicate sample was also collected. Samples were submitted for analysis of VOCs (EPA Method TO-15).

Soil vapor sampling activities were documented using a Soil Vapor Sampling Record. Soil vapor/indoor air results and field documentation were reported under separate cover (MACTEC, 2023b and MACTEC, 2023c).

## 2.3 INTERIM REMEDIAL MEASURES

IRMs are conducted to "prevent, mitigate, or remedy environmental damage or human exposure to contaminants while RAs are being considered" (NYSDEC, 2010). SSDSs were installed to mitigate vapor intrusion of Site related contaminants at:

1) 47 Main Street based on the NYSDOH SVI matrix (NYSDOH, 2017) for trichloroethene (TCE) (installed in October/November 2023).
2) 49 Main Street based on the NYSDOH SVI matrix (NYSDOH, 2017) for PCE (installed in July 2022).

The SSDSs were designed and installed by RMCA, a licensed radon installer with oversight by EEEG. The design/installation followed ASTM E2121 (Standard Practice for Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings) and was performance based to meet a sub-slab vacuum of 0.004 inches water column. SSDS installation reports were completed under separate cover to document the installations (MACTEC, 2023d and MACTEC, 2024b).

Prior to installing the SSDS at 49 Main Street, additional sampling and remedial activities were conducted in January 2022 to evaluate and remediate PCE contamination that was identified within the basement during the SC, including:

- In sediment and water in an approximate two-foot by two-foot by one-foot-deep brick sediment trap/sump located on the western edge of the basement. The sump had an approximate three-inch diameter cast iron pipe in the bottom that was determined to have a p-trap prior to connecting to the sanitary sewer system (this location is below the depth of the storm sewer).
- In silt/water within an approximate 8-foot by 12-foot depression located on the eastern edge of the basement

Additional characterization samples were collected during the RI, and actions were taken to mitigate exposure to the identified contaminants, as described in the following paragraphs.

The brick sump had a constant trickle of water entering from an unknown location. Blood Hound used geophysical techniques across the basement slab to attempt to identify if any pipes/brick conduits lead to the sump on the western side of the basement. Although no obvious pipes were identified, a potential line was identified in a general east west direction on the east side of the sump. To evaluate if this was potentially a leaking pipe coming from the direction of the Site, or a preferential path for contaminated groundwater, the basement slab was cored at two locations in the vicinity of this line for the collection of soil and/or groundwater samples.

Samples were collected from the following locations in the basement:

- GW-002-14 water sample from the three-inch cast iron pipe in the brick sump.
- HA-001-01 soil sample from 0 to 0.6 feet below the bricks within the sump.
- Core hole location 1, 12 feet east of the brick sump
    - GW-002-15 water sample (clear water, no odor or sheen)
    - HA-002 soil sample (wet brown sand with silt and cobbles)
- Core hole location 2, 18 feet east of the brick sump
    - GW-002-16 water sample; yellow oily sheen and petroleum odor
    - HA-003 soil sample (wet brown sand with silt and cobbles)
- GW-002-13 water that filled the depression on the east side of the basement after it had been cleaned out.

After the samples were collected from the brick sump, the sump was power washed and cleaned to remove any potentially contaminated sediment and water. The cast iron pipe was also cleaned out and confirmed to be functional and connected to the sanitary sewer (although the actual connection was not visually identified, the pipe was traced from the surface and the pipe signal disappeared below North Dutcher Street in the vicinity of the sanitary sewer line, which is reportedly present at approximately seven feet below the road).

The depression on the east side of the basement was cleaned of debris and silt and power washed to remove any potentially contaminated sediment. The depression immediately filled with groundwater that seeped in the sides and the above referenced water sample (GW-002-13) was collected.

A daily field activities log detailing the interior sampling conducted in January 2022 is included in **Appendix D**.

During the installation of the SSDS at 49 Main Street in July 2022 the sloped concrete edges of the depression were removed and the depression was mostly filled with washed stone (the depression was approximately 1.2 feet deep) and an approximate 6-inch thick rebar reinforced concrete slab was placed to match the grade of the existing slab (MACTEC, 2023D). This work was conducted to prevent contact to contaminated groundwater and to provide a barrier to prevent off-gassing of VOCs from the groundwater in the depression directly into indoor air.

## 2.4 ADDITIONAL POST RI SAMPLING CONDUCTED

After the RI activities were completed and during the compilation of the FS, it was determined that additional data would be beneficial to evaluate alternatives and potential remedial actions, and therefore the following activities were conducted and reported under separate cover:

- A PDI was conducted in August 2024 to evaluate the potential to conduct injections under 49 and 53 Main Street as part of the remedy, and collection of additional soil and groundwater samples below 49 Main Street at boring DP-18 (same location as HA-03/GW-02-16) to evaluate depth of overburden contamination, overburden hydraulic conductivity, and the soil oxidant demand (EEEG, 2025a).
- SVI samples were collected at 53 Main Street in 2025 to assess current SVI conditions and potential need for an SSDS (EEEG, 2025b).

# 3.0 PHYSICAL SETTING

The sections below describe the topography, climate, surface water and groundwater hydrology, and geology in the area surrounding the Site.

## 3.1 TOPOGRAPHY

The Site is generally flat and is located at an elevation of approximately 90 feet above msl. The topography of the surrounding area slopes down to the west towards the Hudson River which is located approximately 1,300 feet from the Site at an elevation near sea level (United States Geological Survey, 1979).

## 3.2 CLIMATE

The climate of the area is characterized by moderately warm summers and cold winters. Mean monthly temperatures range from 31.4 degrees Fahrenheit (°F) in January to 75.0°F in July. Average annual precipitation is 51.24 inches. Average annual snowfall is 32.7 inches per year (National Climatic Data Center, 2020). A Climate Screening was conducted for the Site to assess the potential for exposures to changes in climate hazards. Potential exposures were not identified (Screening Checklist included in **Appendix E**).

## 3.3 GEOLOGY

Field investigations at the Site suggest that overburden in the area is an unconsolidated till which primarily consists of brown sands and silts. Shallow fill also contained large cobbles. United States Department of Agriculture (USDA) Natural Resources Conservation Services Soil Survey identifies the shallow soil at the Site as Urban land-Charlton complex (8 to 15 percent [%]) that is very deep, well-drained soil (USDA, 1994). The native overburden in the area (below the fill) consists of glacial till deposits overlaying the bedrock (Cadwell, 1989). During the RI/FS, bedrock was encountered at depths between 9 feet bgs and 20 feet bgs across the study area, with bedrock below the parking lot on the north side of the Site encountered at 19 feet bgs. The bedrock surface in the study area is uneven and appears to undulate shallower and deeper bgs.

Bedrock below the Site is mapped as Early Cambrian to Late Ordovician Inwood Marble (Fisher et al., 1970). Inwood Marble is characteristically a dolomite marble, calc-schist, granulite and quartzite overlain by calcite marble (Fisher et al., 1970). However, field observations indicate that the bedrock below the site may be the Fordham Gneiss, which is older than the Inwood Marble and also present in much of Westchester County and is generally described as a coarse-textured, banded black and white biotite gneiss that is rich in quartz and biotite (but is also interlaid with marble, mica schist and granite (Reynolds, 1988). The rock quality designation was 73% for the top five feet of bedrock and 86% from five feet to eight feet into bedrock, indicating high quality rock.

## 3.4 SURFACE WATER HYDROLOGY

The Site is covered by impervious surfaces including the Site building (which occupies the majority of the property) and a paved driveway/parking area. Precipitation from the rear of the property is anticipated to flow down the driveway to North Dutcher streets and into storm water drains which flow west to the Hudson River. Roof drains are also assumed to be connected to the storm water drains.

Storm sewer lines on North Dutcher Street are 16-inch diameter concrete pipes located on the east and west sides of the street and are approximately 56 inches deep.

## 3.5 GROUNDWATER HYDROLOGY

Groundwater beneath the site and the immediate surrounding area is encountered from approximately three to ten feet bgs. Although groundwater was encountered within the overburden at most locations, the top of the water table was below the bedrock surface in some downgradient areas where depth to bedrock was shallow and rose above the top of the water table. Groundwater measurements indicate that shallow groundwater flows west towards the Hudson River. Interpreted groundwater contours and flow direction are presented on **Figure 3.1**. Water level measurements are presented in **Table 2.2**.

As presented in the PDI Report (EEEG, 2025a), hydraulic conductivity values for DP-02 ranged from 1.2 to 2.8 feet per day, resulting in a flow velocity of approximately 170 to 310 feet per year assuming an effective porosity of 0.2 and a hydraulic gradient of 0.623 feet per foot. Values were lower for DP-05, screened slightly deepe than DP-02, with K values ranging from 0.3 to 0.4 feet/day and resulting flow velocities of 40 to 50 feet per year, using the same effective porosity and hydraulic gradient assumptions above.

## 4.0 NATURE AND EXTENT OF CONTAMINATION

This section presents the results of soil, groundwater, sump water, sub-slab soil vapor, and indoor/ambient air samples collected during the RI/FS field work from 2022 through 2024. The results from sub-slab soil vapor and indoor/ambient air sampling conducted in 2022 and 2023 presented in separate reports submitted to the NYSDEC (MACTEC, 2023b and MACTEC 2023c) are included in this evaluation. In addition, relevant analytical results from previous investigations described in **Section 1.0** are discussed as applicable.

Laboratory results were reviewed and evaluated against data quality objectives. DUSRs were prepared in accordance with the "Guidance for the Development of Data Usability Reports" (NYSDEC, 2010) (see **Appendix F**). The data presented in this report and used in this section meet the data quality objectives for an RI/FS.

Analytical Results were compared to the following Standards, Criteria, and Guidance (SCGs):

- Groundwater SCGs are from the NYSDEC's Ambient Water Quality Standards and Guidance Values (NYSDEC, 1998) and Part 5 of the NYS Sanitary Code and the NYSDEC Sampling, Analysis, and Assessment of PFAS (NYSDEC, 2023).
- Soil SCGs are from the NYSDEC's Cleanup Objectives included in 6 NYCRR Subpart 375-6 - Remedial Program SCOs for Unrestricted and Restricted Uses (NYS, 2006) and the NYSDEC Sampling, Analysis, and Assessment of PFAS (NYSDEC, 2023)
- Soil vapor and indoor air were evaluated using the air guidelines provided in the NYSDOH guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," (the NYSDOH Guidance) (NYSDOH, 2017, 2024).

### 4.1 SOIL

Soil samples were not collected for metals, pesticides, PCBs, and SVOCs during the RI because results from the SC did not indicate the site was a source of these contaminants to the environment. One of the five soil samples collected during the SC (location DP-02 at a depth of one foot) did indicate several SVOCs at concentrations above the SCOs for residential use (and one above the SCO for commercial use); however, this sample was collected just below the paved parking lot and is assumed to represent likely asphalt in the sample and not that the site is a source of SVOC contamination. In addition, mercury was detected in one of the five soil samples (location DP-03 at a depth of 3 ft) at a concentration of 1.6

mg/kg compared to the SCO for residential use of 0.81 mg/kg. This result appears to be an anomaly as mercury was not present at elevated concentrations in the other on-site borings and therefore the site was not determined to be a source of mercury contamination.

Soil samples collected during the RI were analyzed for VOCs and PFAS. Soil sample results for VOCs are presented in **Table 4.1** and PFAS are presented in **Table 4.2**. VOC soil sample results from the PDI are also included in **Table 4.1**.

**VOCs.**

Soil samples were collected during the RI and PDI at four locations below the basement slab of the adjacent 49 Main Street (HA-01 to HA-03 and DP-18, although HA-03 and DP-18 were cored at the same location). PCE was detected at three of the four locations (HA-01, HA-03, and DP-18) at concentrations above the SCO for the protection of groundwater:

- Two of these three locations (HA-03 and DP-18) also slightly exceeded the SCO for residential use (maximum detection of 8.46 mg/kg compared to SCO for residential use of 5.5 mg/kg).
- Two of the results (HA-03 and DP-18) also exceeded the SCO for the protection of groundwater for cis-1,2-DCE.
- Highest concentrations were immediately below the basement slab, with low concentrations (below SCGs) on top of bedrock at nine feet below the top of the slab.
- These soil samples were collected below the groundwater table.

Soil sampling conducted at the Site prior to the RI did not indicate remaining VOC contamination at the Site above the SCOs for unrestricted use, including:

- Confirmation soil sampling post the 2006 excavation of the previously identified soil source area to the rear (north) of the building.
- Soil sampling conducted during the 2018 SC, which included exterior soil borings to the rear of the site building (DP-3), adjacent to the west side of the site building (DP-4 and DP-5), and below the slab on grade portion of the building (DP-01).
- Soil sampling conducted during the 2018 SC from below the Site's basement slab (HA-01-10 and HA-01-12) (SC sampling locations and results are presented in **Appendix A**).

VOC sampling indicates an apparent historic release or releases of dry-cleaning solvents from previous Site activities. The concentrations of PCE detected in soil did not indicate an obvious contaminant source area, and most detections were in samples from soils below the groundwater table and likely represent

contaminant migrating in groundwater. Sample locations and PCE results from the SC and RI are presented on **Figure 4.1**.

**PFAS.**

Sampling results indicate that PFAS contamination is present in Site soil; however, PFAS are also present in background areas unaffected by Site activities. The primary PFAS detected above its guidance value was PFOS. **Figure 4.2** presents locations of PFAS soil samples and relative concentrations of PFOS detected.

Background.

For comparative purposes, samples for PFAS analysis were collected from one location upgradient of the Site (DP-09). Concentrations of PFOS were detected in the surface soil sample (3.15 µg/kg) and one- to two-foot-deep sample (1.31 nanograms per kilogram [ng/kg]) above the SCO for the protection of groundwater (1.0 ng/kg) and SCO for unrestricted use (0.88 ng/kg).

Site.

PFAS sampling below the parking area to the rear of the Site indicate that:

- Of the 12 soil samples collected:
    - seven exceeded the protection of groundwater SCO for PFOS (1.0 ng/kg)
    - four exceeded the background concentration for PFOS (3.15 ng/kg), and
    - two exceeded the residential use SCO for PFOS (8.8 ng/kg).
- The highest concentration of PFOS detected during the sampling, 22 ng/kg compared to the residential use SCO of 8.8 µg/kg, was detected at SB-03, near the rear door of the Site building, at a depth of two to three feet bgs.
- PFOS concentrations were below background and the protection of groundwater SCO at the two soil samples collected from five to six feet bgs.

49 Main Street.

Concentrations of PFAS were also detected within the fenced in yard and below the paved driveway of 49 Main Street and results indicate:

- Of the 27 soil samples collected:
    - 20 exceeded the protection of groundwater SCO for PFOS (1.0 ng/kg)
    - 14 exceeded the background concentration for PFOS (3.15 ng/kg), and

  - five exceeded the residential use SCO for PFOS (8.8 ng/kg).
  - one exceeded the protection of groundwater SCO for PFOA (0.8 ng/kg)
- The highest concentration, 18.5 ng/kg, was detected at SB-05 at a depth of two to three feet bgs below the paved driveway.
- PFOS concentrations were below the background concentration in the five samples collected at five to six feet bgs, and below the protection of groundwater SCO in four of the five samples.

Grassed roadside along N. Dutcher Street.

PFAS was detected in the one soil sample collected outside the driveway of 49 Main Street (SB-10).

- PFOS was detected at a depth of one to two feet bgs at a concentration of 3.5 ng/kg, slightly above the background result of 3.15 ng/kg.
- Although it's possible this could be Site related, for the purposes of source area delineation, this sample is being considered background.

PFAS conclusions.

PFAS are present in background soil in the vicinity of the Site, although at lower concentrations than detected at the Site. No obvious point source of PFAS was identified at the Site, and although there may have been discharges of wastewater to the rear of the building that contained PFAS, it is also likely that PFAS distribution in soil is the result of air deposition of PFAS discharged from dryer vents. Concentrations of PFOS were detected in soil at the Site and 49 Main Street at concentrations above residential use and protection of groundwater SCOs, as well as background. Concentrations in soil appear to diminish with depth, with concentrations in samples collected from five to six feet bgs below the background result. The approximate area where PFOS exceeded background (potentially 3.5 µg/kg) is 1,740 square feet. With an estimated depth of contamination above background at four feet bgs, the volume of contaminated soil above background is approximately 260 cubic yards.

## 4.2 GROUNDWATER

Groundwater results for VOCs are presented in **Table 4.3**, PFAS are presented in **Table 4.4**, and SVOCs, metals, pesticides, and PCBs are presented in **Table 4.5**. VOC results from the PDI are also included in **Table 4.3**.

**Upgradient.**: A temporary upgradient (likely background) groundwater well was installed during the SC (DP-07) and sampled in January 2019. Results of the upgradient sample indicated:

- VOCs were not present in upgradient groundwater.
- PFAS were present in upgradient groundwater.
    - PFOS were detected at a concentration of 6.1 ng/L, compared to a MCL of 10 ng/L and guideline value of 2.7 ng/L.
    - PFOA were detected at a concentration of 18 ng/L, compared to an MCL of 10 ng/L and guideline value of 6.7 ng/L.

**VOCs:** PCE and its degradation compounds TCE and cis-1,2-DCE are the primary contaminants in groundwater detected at concentrations above SCGs. The highest PCE concentration detected during the RI, 2,500 µg/L, was detected in groundwater immediately below the basement slab of 49 Main Street, just downgradient from the Site. This concentration is similar to that detected during the SC and PDI. Concentrations of PCE detected in groundwater in the immediate vicinity of the Site during the SC and RI are presented on **Figure 4.3**. and concentrations above groundwater standards are interpreted to extend approximately 200 feet west and southwest of the Site. The extent of the PCE plume is shown on **Figure 4.4**.

Groundwater results indicate potentially two separate areas of VOC contamination above groundwater criteria: 1) from approximately the center of the Site building and extending approximately 200 feet to the west and southwest, and 2) from below the parking area to the north side of the Site building and extending approximately 100 feet to the west. Because there was a known historic spill of PCE to the parking area and a previous soil removal action, a bedrock groundwater monitoring well was installed in this area to confirm there was not a deep source of contamination; VOCs were not detected in groundwater from this bedrock monitoring well. Groundwater samples collected during the PDI also indicate decreased concentrations with depth at DP-18, located below 49 Main Street and immediately downgradient of the presumed source.

**PFAS:** Detections of PFAS exceeded the NYS standard for PFOS and PFOA. The highest concentrations detected during the 2022 RI sampling were detected adjacent to the Site building at DP-04, with concentrations of PFOS at 230 ng/L and concentrations of PFOA of 42 ng/L, which exceed their respective published MCL of 10 ng/L. These concentrations are slightly lower, but in the same order of magnitude as those detected during the SC at temporary point DP-03 (480 ng/L), located directly north of the site building (in the vicinity of MW-3D). DP-04 was resampled in March 2024 with results indicating concentrations of PFOS at 331 ng/L and concentrations of PFOA of 66.7 ng/L.

The groundwater plume indicates that the soil contamination is leaching/has leached to groundwater in the vicinity of the north end of the Site building. The extent of the PFOS overburden groundwater plume is presented on **Figure 4.5**, and the extent of the PFOA overburden groundwater plume is presented on **Figure 4.6** (concentrations shown represent 2022 and older results). The PFOA plume at concentrations above upgradient levels is anticipated to extend approximately 300 feet southwest of the Site and the PFOS plume is anticipated to be slightly longer.

**Other Parameters.** The metals iron, manganese, and sodium were detected in exceedance of the SCGs; however, they are not considered to be Site contaminants and typically occur naturally in the environment. SVOCs were only detected in DP-04 and are likely related to a historic leaking underground heating oil tank at 49 Main Street (petroleum odors and black stained tubing were observed at DP-04); however, SVOCs were not detected at concentrations above SCGs. Pesticides and PCBs were not detected in the groundwater samples.

## 4.3 EXTERIOR SOIL VAPOR

Exterior Soil Vapor samples were collected from nine locations at depths of approximately five feet bgs. Elevated concentrations of PCE (1,100 µg/$m^3$) and TCE (110 µg/$m^3$) were detected in sample GV-08, which was collected below the driveway of 49 Main Street. PCE was detected in the remaining eight soil vapor samples, but at a maximum concentration of 11 µg/$m^3$ and TCE was not detected in any of the remaining 8 samples. Soil vapor results are presented in **Table 4.6**.

## 4.4 SOIL VAPOR/INDOOR AIR

Sub-slab soil vapor, indoor air, and/or outdoor ambient air samples were collected during the RI in 2022 and 2023 at four off-site structures located in the vicinity of the Site (Structures 2, 4, 5, and 6) (MACTEC, 2023b and MACTEC, 2023c). Soil vapor samples were also collected from a fifth structure (Structure 3) during the SC. Sampling was offered at an additional two structures, but property owners declined. Sampling locations are shown on **Figure 4.7**, including the Site building, denoted as Structure 1. Results of air samples collected during the RI are also presented in **Table 4.7**. Structure 1 was sampled during the SC and resampled in February 2025 (reported under separate cover).

As a result of SVI sampling during the SC and RI, two SSDSs were installed at Structures 2 and 5 (MACTEC, 2023d and MACTEC 2024a). The NYSDEC and NYSDOH deemed that no further action was necessary at the remaining properties and that no further sampling was needed.

## 5.0 CONCEPTUAL SITE MODEL

The CSM is based on historical data and data collected during the SC, RI, and PDI. The CSM is based on information that is currently available and is considered to be a dynamic model taking into consideration sources of contamination, potential receptors, exposure pathways, and exposure points. This CSM is intended to be modified as more data become available and to be referenced while collecting and/or analyzing data in the future. The CSM should be modified when information gleaned from field and/or laboratory data demonstrates the need for its modification.

### 5.1 SITE BACKGROUND

It is believed that dry cleaning operations began at the Site in 1965 and have continued (with a period of inactivity between 1990 and 2006) to the present. PCE was used as a dry-cleaning solvent until reportedly 1990, when the Site became a drop off/pick up location only; however, PCE was still present at the facility until 2005, when an undefined quantity of PCE was removed. Although PCE was likely released to the environment prior to 1990 during active PCE use, it is possible that a release could have occurred up to 2005, when the last PCE was removed from the building; spills reportedly occurred in the unpaved parking area behind the building and, based on concentrations observed in groundwater beneath the building foundation, also likely occurred at locations within the building. When the property changed hands in 2006 the use of PCE was reportedly discontinued and operations have since included non-PCE containing solvents and cleaners.

### 5.2 CONTAMINANTS OF CONCERN (COCS)

VOCs, primarily PCE, are present in soil, groundwater, soil vapor, and indoor air at concentrations above the applicable SCGs. The emerging contaminants PFAS have also been identified in soil and groundwater at concentrations above their state criteria.

The fate of VOCs and PFAS in the environment varies in part on their ability to degrade/breakdown and their persistence.

**VOCs.** Chlorinated VOCs are fairly persistent in the environment. The processes that likely control the fate of these contaminants at the Site include the following:

- Volatilization reduces mass through the partitioning of contaminants from aqueous phase to vapor.
- Dissolution reduces soil mass as residual solvent product partitions to groundwater.

- Biodegradation reduces mass as contaminants undergo transformational reactions via aerobic and/or anaerobic processes.

The presence of the PCE degradation products TCE and cis-1,2-DCE in groundwater indicate that some degradation is occurring. Microbial data and monitored natural attenuation (MNA) parameters collected during the SC indicated that although proper microbes for the complete degradation of PCE to non-toxic biproducts are present in low numbers, there is limited evidence for biological degradation (MACTEC, 2020a) (microbial and Biochlor screening results from the SC are also included in **Appendix A**).

However, concentrations of contamination in groundwater in the two plumes appear to be diminishing over time.

For the groundwater plume emanating from the source below the Site parking area, concentrations have been diminishing since the soil removal action in 2006, as evidenced by PCE detected in groundwater in 2006 in the vicinity of DP-03 at concentrations of 600 µg/L prior to the soil removal action, compared to concentrations of 21.9 µg/L during the SC in 2018.

For the groundwater plume apparently emanating from below the center of the Site building, concentrations of PCE remain fairly high in groundwater below the adjacent 49 Main Street (2,500 µg/L) detected during the RI in 2022. There is minimal temporal groundwater data for this second plume; however, the following was observed:

- Groundwater concentrations of PCE in the Site's basement sump were fairly consistent between 2018 and 2022 (154 µg/L and 150 µg/L, respectively).
- Concentrations of PCE along the northern edge of this plume below the southern side of the outdoor courtyard behind 49 Main Street have shown a decreasing trend. DP-05 is at the approximate location of boring TP-2 completed in 2015 by ESI (Enviro Sciences, 2015), and concentrations of PCE in DP-05/TP-2 having diminished from 160 µg/L in 2015, to 2.2 µg/L in 2018, to 0.94 µg/L in 2022.

Although data indicates that the groundwater VOC plumes are diminishing over time, there is likely residual contamination bound to soil below the groundwater table and beneath the Site building that is acting as a continuing source of groundwater contamination. PCE within the soil/water matrix will likely persist for some time as the natural degradation process in this area appears slow.

**PFAS:** PFAS are very persistent in the environment and are considered a class of "forever chemicals" because they are long lasting with components that break down very slowly over time. The processes that likely control the fate of these contaminants at the Site include the following:

- Dissolution reduces soil mass as residual PFAS partitions to groundwater. PFAS were made for their oil and water-resistant properties, and as such, are highly mobile in groundwater; although they can repartition to soil organic matter, as well as other solids based on electrostatic interactions.

There is insufficient PFAS data to determine if there are any trends or patterns in groundwater concentrations.

Although PFAS are present in background soil and upgradient groundwater, the higher concentrations detected in soil at the Site and neighboring yard are likely acting as a continuing source of groundwater contamination.

## 5.3 SOURCE AREAS AND POINTS OF ENTRY

**VOCs:** PCE was previously used at the Site as a dry-cleaning solvent, however no current ongoing use or storage of chlorinated VOCs (e.g., storage tank, or use of chlorinated VOCs) was identified at the Site. Residual soil contamination from spills could be acting as a source to groundwater and indoor air. Reported spills of PCE occurred in the parking area to the rear of the Site building, which was previously unpaved. Soil contamination in this area was excavated to meet unrestricted use SCOs, however, contaminants appear to have migrated with infiltrating rainwater to groundwater in this area of the Site. Additionally, based on concentrations identified in the water collected from the basement sump at the Site, it is likely that spills occurred at locations inside the building and migrated to sub-slab soil. Although possible, it is not apparent that PCE is present as a DNAPL in soil below the Site building. Convention is that a VOC is present as a DNAPL, or was present at one time as a DNAPL, if concentrations in groundwater exceed 1% of the effective solubility of the compound (Plankow, 1996). The highest concentration of PCE detected in groundwater, 2.5 mg/L at GW-02-16, is approximately 1.6% of the solubility of PCE in water (150 mg/L). Although greater than 1% of effective solubility, due to the low concentration and time since the likely spill that would allow the product to sorb to soil particles, there is not strong evidence for the presence of PCE as a DNAPL. In addition, soil and groundwater data collected during the PDI indicate decreased concentrations of PCE with depth below sample GW-02-16 (at DP-18), indicating that PCE did not travel vertically through the soil column as a DNAPL. Although PCE as a DNAPL is not likely present below the site, it is likely that there are pockets

of unidentified PCE soil contamination below the site building, or sorbed to soil particles below 49 Main Street, that are acting as a continued source of groundwater contamination.

Although chlorinated compounds present in building material, for example chlorinated compounds that spill to building material such as concrete, can act as a source of contamination to indoor air, screening conducted during the SC did not identify an interior source of PCE contamination.

**PFAS.**: PFAS have been used since the 1950's to make products resistant to heat, oil, stains, grease, and water (USEPA, 2017) including use as coatings for material such as clothing and carpets. During the cleaning process PFAS can leach from this material into cleaning solvents and wastewater and can be discharged to the air during the material drying process. PFAS was identified in soil at the Site and at 49 Main Street. The source of this PFAS soil contamination is likely discharges of solvents or wastewater used in the cleaning process to the ground surface to the rear (north) of the Site building, as well as likely air deposition from dryer vents at the Site. This soil contamination is likely acting as a continued source of groundwater contamination.

In addition to site activities resulting in a soil source area of PFAS contamination, worldwide use of PFAS have made them fairly ubiquitous in the environment at low concentrations. PFAS was detected in the vicinity of the Site in background soil and upgradient groundwater, although at lower concentrations than those identified on-site.

## 5.4 HYDROGEOLOGY AND CONTAMINANT DISTRIBUTION

Field investigations at the Site suggest that overburden in the area is an unconsolidated till which primarily consists of brown sands and silts overlaying the bedrock. Bedrock was encountered at 19 feet bgs below the Site parking lot and approximately 9 feet bgs 100 feet west of the Site (**Figure 5.1**). Groundwater beneath the site and immediate surrounding area was encountered from approximately three to ten feet bgs. Groundwater measurements indicate that flow is generally west towards the Hudson River.

**VOCs:** Two distinct PCE plumes have been identified in Site groundwater apparently originating from two primary sources: soils below the parking area behind the building (soils were previously removed), and contaminated soil beneath the site building (although a soil source area below the building was not identified). The plume originating from the parking area has lower PCE concentrations (detected as high as 7.5 µg/L during the RI) than the plume originating from beneath the Site building (PCE detected as high as 2500 µg/L during the RI just downgradient from the center of the Site building). A geologic cross section below the Site building and vicinity showing groundwater chlorinated compound contamination is presented on **Figure 5.1** (cross section location shown on **Figure 2.1**).

The PCE groundwater plume originating from the parking area is interpreted to extend in overburden groundwater at concentrations above NYS standards approximately 60 feet west. Chlorinated compounds were not detected in the bedrock groundwater sample collected from MW-3D, indicating that VOC contamination did not extend to bedrock in the vicinity of the contaminant source area in the parking lot.

The PCE plume originating from below the center of the Site building is interpreted to extend at concentrations above NYS Standards approximately 200 feet west-southwest.

**PFAS:** PFAS are highly mobile in groundwater and ubiquitous in the environment. The PFAS soil contamination at the Site and 49 Main Street has resulted in a groundwater plume with concentrations of PFOS and PFOA above upgradient concentrations that extend an estimated 300 feet west of the site. The concentrations of PFOS and PFOA in upgradient groundwater are above the published NYS maximum contaminant levels (MCLs) of 10 ng/L for each of these compounds. Although the far downgradient samples collected (DP-15) are in the same order of magnitude as concentrations in upgradient groundwater, allowing for an approximate estimation of the area of groundwater contamination related to Site activities, due to the limited data set and the presence in upgradient groundwater, the exact extent of the Site related plume of PFOA and PFOS is not defined.

## 5.5 CONTAMINANT MIGRATION

**VOCs:** VOCs have migrated from the site from soil source areas to groundwater and soil vapor. Although the parking lot source was excavated from the site in 2006, contaminants appear to have migrated into the groundwater in this area, likely with precipitation. Groundwater is also present immediately below the Site building and contaminants that were discharged to soil below the building have migrated into groundwater, likely with fluctuating water levels that inundate contaminated soil.

Groundwater flows to the west, and the plume of PCE at concentrations greater than NYS standards is interpreted to extend approximately 200 feet west and southwest of the Site.

VOCs in soil and groundwater can partition to soil vapor and migrate into the indoor air with soil vapor intrusion. Soil vapor and indoor air was evaluated at structures above the groundwater plume. PCE was detected within the indoor air at the Site and at 49 Main Street at concentrations above the NYSDOH guidance values for PCE. In addition, TCE, a PCE breakdown product, was detected in soil vapor below an additional building above the groundwater plume at a concentration which the NYSDOH recommends that a mitigation system be installed in the overlying structure to prevent potential indoor air contamination. As a result of the SVI sampling, SSDSs were installed at two structures hydraulically downgradient from the Site. Based on SVI sampling conducted at two other structures, no further actions were recommended by the NYSDOH.

**PFAS.**: The primary migration pathway for PFAS contamination from the Site is through groundwater. The PFAS present in soil has migrated to groundwater with infiltrating rainwater. This plume above upgradient concentrations and the NYS MCLs is interpreted to extend approximately 300 feet west of the Site.

## 5.6 SITE RECEPTORS

**Human Receptors.**

**VOCs.:** Potential human exposure to VOC contamination could result from contact with:

- contaminated subsurface soils below the Site building during construction activities.
- contaminated groundwater during construction activities, such as excavation, or if extracted.
- contaminated indoor air via vapor migration into commercial or residential structures.

**PFAS:** Potential human exposure to PFAS contamination could result from contact with:

- contaminated surface and subsurface soils during gardening or construction activities.

- contaminated groundwater during construction, activities, such as excavation, or if extracted.

Human exposure is discussed in more detail in **Section 6**.

**Ecological Receptors.**

There is limited available habitat at the site as the majority of the contamination at the Site is either beneath paved surfaces or building foundations. It is not anticipated that contamination is reaching surface water (i.e., the Hudson River) at concentrations above SCGs. As a result of a lack of potential ecological receptors, a fish and wildlife impact analysis was not conducted.

## 6.0 QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

This section provides a QHHEA for the Irvington Rugs and Cleaners Site. The QHHEA is performed in accordance with NYSDEC DER-10 Technical Guidance (NYSDEC, 2010), which indicates that the QHHEA should evaluate the populations of humans that may potentially occur at and in the vicinity of the Site, and the mechanisms or exposure pathways by which those humans may be potentially exposed to contamination associated with the Site. This section also evaluates the significance of exposure that may occur through the potential exposure pathways. This exposure assessment involves five elements:

1) Description of the contaminant source and the contaminated environmental medium (discussed in detail in **Section 5.0**).
2) Explanation of the contaminant release and transport mechanisms to the exposed population (discussed in detail in **Section 5.0**).
3) Identification of potential exposure points to which the populations may come in contact with contaminated medium (discussed in detail in **Section 5.0**).
4) Description of the routes of exposure (i.e., ingestion, inhalation, etc.).
5) Characterization of the receptor population who may be exposed to contaminants at the identified points of exposure (takes into consideration the populations that may be potentially exposed to Site-related contamination under the current and future land uses).

**Exposure Pathway Evaluation and Qualitative Exposure Analysis**

The current and anticipated future use of the Site property is commercial. The properties bordering the Site are a mix of commercial and residential properties.

Chlorinated VOCs and PFAS compounds are the COCs at the Site in relation to potential human exposures above SCGs. Potentially complete exposure pathways include direct contact with soil and groundwater via construction and gardening activities and inhalation of vapors that may migrate from soil and/or groundwater to air within overlying structures.

**Soil**

**VOCs**: PCE was detected at locations below the Site parking area and below the Site basement concrete slab, but concentrations were below the SCO for unrestricted use for PCE. Concentrations of PCE detected in a soil sample collected from beneath the building slab at 49 Main Street, downgradient from the Site, did exceed the Residential Use SCO. Residents and commercial workers would not come into direct contact with contaminated soils below 49 Main Street unless subsurface work occurs below the basement slab. Currently, subsurface work is not planned at the Site, and therefore direct contact with subsurface soils by residents and construction workers is not currently a complete exposure pathway. However, there is a potential for future exposure.

Although direct contact to contaminated soils is not anticipated to be a potentially complete exposure pathway, concentrations observed in soil below the 49 Main Street could act as a continuing source of groundwater contamination. Groundwater exposure scenarios are discussed in the following paragraphs. VOCs in soil in the vicinity of the Site building also have the potential to migrate into surrounding buildings via vapor intrusion (discussed below).

**PFAS:** PFAS compounds were detected below the Site driveway and below the driveway and in soil in the fenced-in yard at 49 Main Street at concentrations greater than residential use criteria. Construction workers could come into contact with this soil contamination if construction activities occur, and workers or residents of 49 Main Street could come into contact with contaminated soil if gardening or yard work is done in this area. Although PFAS can transfer into the body through dermal contact, the primary exposure pathways would be inhalation of contaminated dust, or ingestion of contaminated soil.

**Groundwater**

There are no known current residential or commercial groundwater wells within a mile of the Site. Public water is supplied from Upstate New York by underground aqueducts that supply New York City. Based on this information, there are no known direct exposures to contaminated groundwater from a drinking water pathway under current or potential future land uses.

However, a comparison of groundwater analytical data to NYS drinking water standards and guidance values provides information regarding constituents that would be of concern if Site groundwater was used as potable water under existing conditions. A review of the analytical data indicates that chlorinated VOCs (i.e., PCE, TCE, and cis-1,2-DCE) and the PFAS compounds PFOA and PFOS were detected at concentrations that exceed drinking water standards. Although several metals (iron, manganese, and sodium) were detected at concentrations greater than drinking water standards, these are not anticipated to be related to Site activities.

Although contaminant concentrations in groundwater exceed drinking water standards, the drinking water pathway is not a complete exposure pathway of concern under the existing and potential future land uses. Direct contact with contaminated groundwater is possible if excavations are conducted within the area of the overburden groundwater plume (depth to groundwater in the vicinity of the groundwater plume varies from between 4 and 9 feet bgs).

**Soil Vapor Intrusion**

SVI has been identified as a complete exposure pathway in the vicinity of the Site resulting from off-gassing of contaminated groundwater and soil. SVI sampling has been conducted at six properties since 2019 (Structures 1 to 6 shown on **Figure 4.7**). Based on sampling results, it was determined that soil vapor intrusion was occurring at one off-site property at levels exceeding the NYSDOH indoor air guideline value, and there was a potential for soil vapor intrusion at a second off-site property. To mitigate identified and potential exposure, SSDSs were installed at two off-site properties. A description of the installation of the SSDSs is presented under separate cover (MACTEC, 2023d and MACTEC, 2024b). Additional SVI sampling conducted in 2025 did not identify an exposure pathway at the Site.

## 7.0 RI SUMMARY AND CONCLUSIONS

Analytical data collected from investigations to date indicates that PCE was discharged at the Site. There appears to be two primary source areas of PCE contamination: 1) the soil in the parking area to the rear (north) of the Site building that was remediated by excavation in April 2006, and 2) contamination in soil/groundwater below the center of the Site. Entry points to the environment in the source areas likely included spills/discharges to the ground on the north side of the building, and release of dry-cleaning solvents to the floor of the building, which entered the environment through floor cracks and/or the basement sump. In addition to the VOC contamination, PFAS contamination was identified in soil at the Site and at the neighboring property, potentially as the result of air deposition of PFAS from dryer vents, or from discharges of wastewater containing PFAS. Chlorinated VOCs and PFAS present in contaminated soil have migrated vertically to the water table and continue to migrate with groundwater flow to the west/southwest towards the Hudson River.

**Soil:** Concentrations of PCE in soil samples collected below the Site parking area and Site basement did not exceed SCGs (samples collected during the SC). Three of the four soil samples collected below the basement of 49 Main Street (during RI and PDI) exceeded the protection of groundwater SCOs for PCE and two of these (both at same location) also slightly exceeded the residential use SCO for PCE (maximum concentration of 8.46 mg/kg compared to a residential use criteria of 5.5 mg/kg). These soil samples were collected below the groundwater table and likely are the result of contaminated groundwater. It is possible that soil contamination exists below the center of the Site building, but it does not appear to be an extensive source. Based on the current use of the Site and 49 Main Street and the historic nature of the Village of Irvington, direct contact to VOC contaminated soil under the buildings is unlikely; although construction work could occur that would disturb the basements' concrete slabs.

Concentrations of PFAS (primarily PFOS) in soil below the driveway of the Site and 49 Main Street, as well as in the fenced-in yard of 49 Main Street were detected at concentrations above protection of groundwater and residential use SCOs; however, background soil samples also exceeded the protection of groundwater SCO. The highest concentration of PFOS was 22 µg/kg compared to a residential use criteria of 8.8 µg/kg. The estimated volume of PFAS-contaminated soil above background is 260 cubic yards. Direct contact with PFAS-contaminated soil may be a complete exposure pathway by maintenance workers or residents if gardening work is done in the fenced-in yard. Construction workers could also come into contact with contaminated soil if the paved driveway is removed.

**Water:** PCE and its breakdown products TCE and cis,1-2 DCE were detected in groundwater at and downgradient of the Site at concentrations above groundwater standards. PCE was the primary contaminant identified above its SCG, with two apparent groundwater plumes: one smaller plume originating from the previously excavated area located to the rear (north) of the Site building extending approximately 50 feet west to North Dutcher Street, and one plume originating from under the center of the Site building and extending approximately 180 feet to the southwest at concentrations above standards. The highest concentration of PCE detected in groundwater, 2880 µg/L, was detected below 49 Main Street during the PDI. VOC groundwater contamination was present in the shallow groundwater, which primarily exists in overburden, although the bedrock surface is uneven and the water table drops below the top of bedrock surface periodically downgradient of the Site where the bedrock rises closer to the ground surface.

PFAS contamination in soil has migrated to groundwater, with the highest concentrations detected near the rear (north) of the Site building and flowing primarily to the southwest. The highest concentration of PFOA detected was 95 ng/L compared to an MCL of 10 ng/L and guidance value of 6.7 ng/L. PFOA was also detected in groundwater upgradient of the Site during the SC at a concentration of 18 ng/L. The plume of PFOA interpreted to be originating from the Site and exceeding upgradient concentrations is anticipated to extend approximately 300 feet southwest from the rear of the Site building. The highest concentration of PFOS detected during the RI was 331 ng/L, compared to an MCL of 10 ng/L and guidance value of 2.7 ng/L. PFOS was also detected in groundwater upgradient of the Site during the SC at a concentration of 6.1 ng/L. The plume of PFOS originating from the Site and exceeding upgradient concentrations is anticipated to be slightly larger than the PFOA plume, extending more than 300 feet southwest from the rear of the Site building.

Groundwater in the vicinity of the Site is not used as a source of drinking water and VOC contamination is not anticipated to reach the Hudson. In addition, concentrations of site related PFAS in groundwater are anticipated to reduce to upgradient concentrations prior to reaching the Hudson River.

**Soil Vapor/Indoor Air:** VOC contaminants in soil and groundwater have the potential to migrate into nearby buildings via SVI. Soil vapor intrusion sampling has been conducted at the Site building and at five off-site buildings (Structures 1 to 6 investigated during both the RI and SC). Based on the sampling results, SSDSs were installed at two off-site mixed use (commercial/residential) buildings to mitigate the potential for SVI. The NYSDEC and NYSDOH determined that soil vapor intrusion is not a concern for the other off-Site buildings sampled. Based on SVI sampling results from the SC in 2019, PCE detected in the indoor air at the Site building at concentrations above guidance values appeared to be the result of vapor intrusion; however, additional SVI sampling conducted in February 2025 and reported under separate cover indicated SVI was not a concern at the Site building and no further action was necessary (EEEG, 2025b). It's possible that an unidentified product containing PCE was present in the building in 2019 that has since been removed.

**Data Gaps:** Based on results of the RI investigation and the CSM presented in **Section 5.0**, data gaps were evaluated and include:

- Although the PFOS plume in groundwater originating from the Site and above upgradient concentrations is anticipated to extend slightly more than 300 feet southwest of the rear of the Site building and diminish to upgradient concentrations prior to reaching the Hudson River, the actual extent of the PFOS plume exceeding upgradient concentrations was not defined. However, there is sufficient data to prepare the FS.

# 8.0 DEVELOPMENT OF REMEDIAL ACTION GOALS AND OBJECTIVES, AND GENERAL RESPONSE ACTIONS FOR CONTAMINATION REQUIRING REMEDIATION

RAOs form the basis for identifying remedial technologies and developing RAs. This section identifies RAOs for the contaminated Site media, general response actions to address these RAOs, and the extent of contamination requiring remedial action.

Site-specific remedial objectives for the impacted media were developed with consideration for the frequency of contaminant detections; background/upgradient concentrations; the chemical and toxicological properties of the COCs; existing or potential exposure pathways; and the present or projected Site use.

## 8.1 IDENTIFICATION OF REMEDIAL ACTION OBJECTIVES

RAOs consist of medium-specific or operable unit-specific goals for protecting human health and the environment (NYSDEC, 2010). RAOs specify the COCs, exposure pathway(s) and receptor(s), and acceptable contaminant levels or range of levels for each exposure route. Site-specific COCs were determined by comparison of contaminant levels to Chemical-Specific SCG values but did not consider Site-specific exposure pathways.

RAOs presented in the following subsections were developed for the specific media and receptors identified in the QHHEA. Acceptable contaminant levels or range of levels for each media are referred to as remediation goals (RGs). The RGs developed for the Site consider both the identified COCs and the potential exposure pathways and receptors. The Chemical-Specific SCGs generally provide both exposure pathway- and receptor-specific criteria and were used in the development of Site-specific RGs.

### 8.1.1 Remedial Action Objectives for Soil

RI sampling results indicate that PFAS contamination is present in both on-Site soil and off-Site soil at the adjacent property (49 Main Street). PFAS is present in soils at concentrations above the Protection of Groundwater and Residential Use SCOs both below the parking area to the rear of the Site and within the fenced-in yard of 49 Main Street. The majority of contamination is at depths 1 to 2 feet bgs, with concentrations appearing to diminish with depth.

Although sampling conducted during the SC and RI did not indicate remaining VOC contamination in soil at the Site above Unrestricted Use SCOs, VOCs were detected in soil samples collected from beneath the slab of 49 Main Street at concentrations above Unrestricted Use SCOs.

Direct contact with contaminated soils could occur if subsurface work were to occur in areas where contaminated soil is present. Remaining impacted soil will likely continue to act as a source of groundwater contamination.

VOCs at shallow depths in soil have the potential to migrate into surrounding buildings via vapor intrusion.

Therefore, the RAOs for soil are:

- Prevent ingestion/direct contact to contaminated soil.
- Prevent inhalation of, or exposure to, contaminants volatilizing from contaminated soil.
- Prevent migration of contaminants that would result in groundwater contamination.

### 8.1.2 Remedial Action Objectives for Groundwater

Groundwater VOC contamination at the Site may contribute to soil vapor and result in vapor intrusion to on-and off-Site indoor air. Indoor air and soil vapor sampling conducted at six structures in the vicinity of the Site during the SC and RI from 2018 to 2025 resulted in the installation of two SSDSs. Although no further action or sampling was deemed necessary at the remaining properties, the shallow depth to water at the Site (typically between 4 and 9 feet bgs) makes vapor intrusion a concern for buildings above the contaminant plume.

Groundwater at and in the vicinity of the Site contains COC at concentrations exceeding drinking water standards. The area is serviced by public water, and therefore groundwater is not believed to be used as a source of drinking water. Groundwater as a drinking water source is not a complete exposure pathway of concern under the existing or potential future land uses.

Direct contact with contaminated groundwater is possible if excavations are conducted within the area of the overburden groundwater plume (depth to groundwater in the vicinity of the groundwater plume varies from between 4 and 9 feet bgs).

Therefore, the RAOs for groundwater are:

- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.
- Remove or control the source of ground or surface water contamination.

### 8.1.3 Remedial Action Objectives for Soil Vapor/Indoor Air

Chlorinated solvents present in shallow saturated soil and groundwater have the potential to migrate into nearby structures a result of SVI. Evaluation of six properties in the vicinity of the Site identified SVI occurring at one off-Site property, and identified a potential for SVI at a second off-Site property. SSDSs were installed at the two off-Site properties, and no further action was deemed necessary at the remaining properties.

Therefore the RAOs for Soil Vapor/Indoor Air are:

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings in the vicinity of the Site.

### 8.1.4 Remediation Goals

The RGs for the Site include attaining, to the extent practicable, the following chemical-specific SCGs:

- Residential SCOs for soil on the Site property, and adjacent property at 49 Main Street (NYS, 2006)
- GA Groundwater Quality Standards (NYS, 1999)
- Division of Water Technical and Operational Guidance Series (TOGS), 2023 Addendum for guidance values related to PFAS (NYSDEC, 2023).
- Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2024).

## 8.2 IDENTIFICATION OF GENERAL RESPONSE ACTIONS AND EXTENT OF CONTAMINATION REQUIRING REMEDIAL ACTION

General response actions describe those actions that will satisfy the RAOs (NYSDEC, 2010). General response actions may include treatment, containment, excavation and disposal, institutional controls (IC), engineering controls (EC), or a combination of these. Like RAOs, general response actions are medium-specific. Based upon the current Site conditions and the RAOs identified for the Site, the potential threats related to the Site are exposure to contaminated soil, groundwater, and indoor air (from vapor intrusion).

### 8.2.1 General Response Actions – Soil

The following general response actions would address the RAOs identified for subsurface soil at the Site property.

- IC and EC
- Containment
- Removal
- In-Situ Treatment

### 8.2.2 General Response Actions – Groundwater

The following general response actions would address the RAOs identified for groundwater at the Site.

- ICs
- Natural Attenuation
- Containment
- In-Situ Treatment
- Ex-Situ Treatment

### 8.2.3 General Response Actions – Soil Vapor/Indoor Air

The following general response actions would address the RAOs identified for soil vapor intrusion at the Site and surrounding properties.

- ECs

# 9.0 IDENTIFICATION AND SCREENING OF TECHNOLOGIES AND DEVELOPMENT OF ALTERNATIVES

This section identifies and screens potential remedial technologies. Technologies are identified for the purpose of attaining the RAOs established in **Section 8.1** following the general response actions described in **Section 8.2**.

Following identification, candidate technologies are screened based on their applicability to Site- and contaminant-limiting characteristics. The purpose of the screening is to produce an inventory of suitable technologies that can be assembled into RAs capable of mitigating actual or potential risks at the Site. Potential technologies representing a range of general response actions (i.e., no further action, Site management, treatment, etc.) are considered. Technology screening results in a list of potential remedial technologies that may be developed into candidate remedial action alternatives.

## 9.1 IDENTIFICATION AND INITIAL SCREENING OF TREATMENT TECHNOLOGIES

Preliminary review of remedial technologies and specific process options applicable to the Site summarized in **Table 9.1** was conducted in general accordance with the USEPA's Guidance for Conducting RI/FS (USEPA, 1988). Additional technologies from the Interstate Technology and Regulatory Council (ITRC) were also reviewed (ITRC, 2024). The screening focuses on technology types capable of remediating the COCs present in Site soils, groundwater, and soil vapor and evaluates the implementability of the technology. Based on this evaluation, technologies retained are determined to be potentially viable treatment options for the contaminated Site media. These technologies will undergo a more detailed evaluation in the following report subsections.

## 9.2 DETAILED SCREENING OF TECHNOLOGIES

Consistent with DER-10, the remedial action technologies retained from the initial screening process (**Table 9.1**) were screened based on whether they can meet the RAOs (Effectiveness) and whether they are technically implementable (Implementability). Additionally, based upon available information, the relative cost of each RA is also evaluated. The rationale for either retaining or eliminating treatment options is presented and summarized in **Table 9.2**. The remedial action options retained from the detailed screening process were used to develop the proposed RAs discussed below in **Subsection 9.3**, and further described in **Section 10.0**.

## 9.3 DEVELOPMENT OF REMEDIAL ALTERNATIVES

Media-specific remedial components retained in **Table 9.2** were compiled into five RAs which address contaminated media. The RAs are summarized in **Table 9.3** below, followed by a brief description of each alternative in the following sub-sections.

**Table 9.3 Development of Alternatives**

| | **Proposed Alternatives** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Alternative Components** | **1** | **2** | **3a** | **3b** | **4a** | **4b** | **5** | **6** |
| No Action | X | | | | | | | |
| Pre-Design Investigation | | X | X | X | X | X | X | X |
| Institutional/Engineering Controls and Site Management Plan | | | X | X | X | X | X | X |
| Soil Excavation | | X | X | X | | | | |
| Low Permeability Cover System | | | | | X | X | | |
| In-Situ Sorption and In-Situ Chemical Reduction | | X | | | | | | |
| Enhanced Bioremediation | | X | | X | | X | X | |
| In-Situ Chemical Oxidation | | | X | | X | | X | |
| Monitored Natural Attenuation | | X | | X | | X | | X |
| Long-Term Groundwater Monitoring | | | X | X | X | X | X | X |

### 9.3.1 Alternative 1: No Further Action

This alternative will be used as a baseline for comparison to other RAs. No further action would be taken to address contaminated soil or groundwater or soil vapor intrusion related to the Site.

### 9.3.2 Alternative 2: Soil Excavation to Background with In-Situ Sorption, In-Situ Chemical Reduction, and Enhanced Bioremediation of Groundwater

Alternative 2 includes the excavation of surface and subsurface soil exceeding background concentrations of PFOS (3.15 ppb) to minimize the potential for direct exposure to impacted soil. Alternative 2 also includes in-situ sorption with liquid carbon where PFAS concentrations in groundwater exceed 50 ng/L to bind PFAS contamination and reduce contaminant mobility, followed by in-situ chemical reduction and enhanced bioremediation where PCE concentrations exceed 5 µg/L in groundwater. Alternative 2 includes a PDI to conduct baseline groundwater sampling, develop a vertical profile of contaminant mass flux via flux mapping, and perform property surveys, structural analyses, and waste characterization to support excavation design. The objective of the Site work would be to reach pre-disposal conditions to extent feasible. Groundwater monitoring, including MNA, would be conducted for 5 years to evaluate the effectiveness of the remedy. After which, it is assumed that neither a Site Management Plan (SMP) nor Long-Term Monitoring (LTM) would be required.

### 9.3.3 Alternative 3a: Soil Excavation to Residential Standard with In-Situ Chemical Oxidation of Groundwater

Alternative 3a includes the excavation of surface and subsurface soil exceeding residential standard concentrations of PFOS (8.8 ppb) and in-situ chemical oxidation (ISCO) of impacted groundwater. The objective of the excavation would be to meet Residential SCOs for PFAS. Groundwater treatment would be restricted to where PCE concentrations exceed 100 µg/L, to reduce the size and concentration of the source area to effectively reduce potential impacts to indoor air. Alternative 3a includes a PDI to conduct baseline groundwater sampling and to perform property surveys and waste characterization to support excavation design. Following implementation, a SMP would be prepared, periodic inspections and monitoring would be conducted to evaluate Site conditions, and ICs would be implemented in the form of a deed restriction to prevent installation of drinking water wells. Additional monitoring wells would be installed, and monitoring would be conducted to assess groundwater quality for up to 30 years.

### 9.3.4 Alternative 3b: Soil Excavation to Residential Standard with Enhanced Bioremediation of Groundwater

Alternative 3b includes the excavation of surface and subsurface soil exceeding residential standard concentrations of PFOS (8.8 ppb) and enhanced bioremediation of impacted groundwater. The objective of the excavation would be to meet Residential SCOs for PFAS. Groundwater treatment would be restricted to where PCE concentrations exceed 100 µg/L, to reduce the size and concentration of the source area to effectively reduce potential impacts to indoor air. Alternative 3b includes a PDI to conduct baseline groundwater sampling and to perform property surveys, and waste characterization to support excavation design. Following implementation, an SMP would be prepared, periodic inspections and monitoring would be conducted to evaluate Site conditions, and ICs would be implemented in the form of a deed restriction to prevent installation of drinking water wells. Additional monitoring wells would be installed, and monitoring would be conducted to evaluate natural attenuation and assess groundwater quality for up to 30 years.

### 9.3.5 Alternative 4a: Low-Permeability Cover System with In-Situ Chemical Oxidation of Groundwater

The groundwater remedy for Alternative 4a is the same as that of Alternative 3a. The soil remedy, however, includes the containment of PFAS-impacted soils under a low-permeability cover system, in lieu of excavation.

### 9.3.6 Alternative 4b: Low-Permeability Cover System with Enhanced Bioremediation of Groundwater

The groundwater remedy for Alternative 4b is the same as that of Alternative 3b. The soil remedy, however, includes the containment of PFAS-impacted soils under a low permeability cover system, in lieu of excavation.

### 9.3.7 Alternative 5: In-Situ Chemical Oxidation and Enhanced Bioremediation of Groundwater

Alternative 5 includes groundwater treatment with ISCO where PCE concentrations exceed 100 µg/L, to reduce the size and concentration of the source area to effectively reduce potential impacts to indoor air. Additionally, groundwater in the northern part of the site that exceeds 10 µg/L would be treated with enhanced bioremediation. Alternative 5 includes a PDI to conduct baseline groundwater sampling and to perform property surveys. Following implementation, a SMP would be prepared, periodic inspections and monitoring would be conducted to evaluate Site conditions, and ICs would be

implemented in the form of a deed restriction to prevent installation of drinking water wells. Additional monitoring wells would be installed, and monitoring would be conducted to assess groundwater quality for up to 30 years.

### 9.3.8 Alternative 6: Long-Term Groundwater Monitoring and Institutional Controls

An SMP would be prepared, and periodic inspections and monitoring would be conducted to evaluate Site conditions, and ICs would be implemented in the form of a deed restriction to prevent installation of drinking water wells and future residential use of the Site. Additional monitoring wells would be installed, and groundwater samples would be tested for multiple parameters to evaluate water quality for up to 30 years. Alternative 6 includes a PDI to install monitoring wells and conduct baseline groundwater sampling.

# 10.0 DEVELOPMENT AND DETAILED DESCRIPTION OF ALTERNATIVES

This section provides a detailed description of the alternatives retained in **Section 9.0**. These conceptual designs were used to estimate the associated costs for each alternative.

## 10.1 ALTERNATIVE 1: NO FURTHER ACTION

This alternative does not include any actions to address Site contamination. This alternative will be used as a baseline for comparison to other RAs.

## 10.2 ALTERNATIVE 2: SOIL EXCAVATION TO BACKGROUND WITH IN-SITU SORPTION, IN-SITU CHEMICAL REDUCTION, AND ENHANCED BIOREMEDIATION IN GROUNDWATER

Alternative 2, soil excavation to background with in-situ sorption, in-situ chemical reduction and enhanced bioremediation in groundwater, consists of the following components, which are subsequently described in detail:

- PDI
- Soil Excavation
- On- and off-site in-situ sorption in groundwater with liquid carbon
- On- and off-site in-situ chemical reduction and enhanced bioremediation
- Groundwater Monitoring and Monitored Natural Attenuation

**PDI:** Prior to implementation, a PDI will be conducted to support remedial design of Alternative 2, including the installation of four (4) permanent groundwater monitoring wells, collection of baseline groundwater samples, and vertical delineation of contaminant mass flux and groundwater velocity via flux mapping. Baseline groundwater samples will be tested for VOCs, PFAS, and MNA parameters, in addition to field parameters for pH, oxidation reduction potential, and DO. Additionally, PDI activities will include property and utility surveys and structural analysis of buildings near the soil excavation area to support excavation design. Soil samples will be collected from the proposed soil excavation area for waste characterization.

**Soil Excavation:** Contaminated soil with PFAS concentrations above background levels (3.15 ppb) at this property will be excavated. Impacted soil is estimated to be within an approximate 1,740 square feet area; the approximate location of the excavation is shown in **Figure 10.1**. Excavation of soil to the shallower of either 4 feet bgs or top of groundwater will occur following initial clearing of existing asphalt and brush. Excavated soil will be direct loaded into trucks for off-Site transportation and disposal. Excavation dewatering is not anticipated. Excavation supports adjacent to the buildings may be required during excavation. Documentation samples will be collected from the bottom of the excavation, on a frequency of one sample per 25 foot by 25 foot area. Upon completion of the excavation, suitable backfill material meeting DER-10 criteria will be placed and compacted in six-inch lifts to within 6 inches of existing grades. Topsoil will then be placed in areas that are currently vegetated, and asphalt will be placed in areas that are currently paved.

**On- and Off-Site In-Situ Sorption with Liquid Carbon:** Injection of liquid activated carbon will be implemented to act as a permeable reactive barrier (PRB) for PFAS plume control, reducing contaminant mobility downgradient. Roto-sonic drilling of injection points has been assumed for this area, where bedrock is shallow and may be difficult to penetrate with a direct push drill rig. For costing purposes, it is assumed that injection activities will be performed with temporary injection points and no permanent wells will be installed. **Figure 10.2** shows the proposed treatment area as a 90-foot long PRB along the western edge of North Dutcher Street, spanning from the corner of North Dutcher Street and Main Street across the breadth of the 50 ng/L concentration contours of the PFOS and PFOA plumes. The PRB will extend approximately 10 feet to the north of 50 ng/L concentration contour of the combined PFOS and PFOA plume. Injections at 36 locations are estimated.

Injection of liquid activated carbon to bind PFAS impacts will also be implemented at a treatment area of approximately 180 square feet in the yard and driveway at the rear of the buildings at 49-53 Main Street, in conjunction with in-situ chemical reduction and enhanced bioremediation, further described below. Injection of liquid carbon at this treatment area is assumed for only the first of two rounds of injections. Injections at 8 locations via direct push drilling methods are estimated.

A budgetary estimate was obtained from a specialized vendor for the cost of activated carbon and injection services based on the treatment area and depth of the treatment zone and the associated contaminants. Final decisions regarding well layout, use of permanent or temporary wells, and injection frequency will be made during remedy design.

**On- and Off-Site In-Situ Chemical Reduction and Enhanced Bioremediation:** Injection of chemical reductants in conjunction with bio-amendments will be implemented to address on- and off-Site PCE-impacted groundwater. Chemical reductants and bio-amendments are assumed to be fully compatible and injected as a single mixture. For costing purposes, it is assumed that injection activities will be performed through temporary injection points and that permanent wells will not be required. Two rounds of injections at each of the following proposed treatment areas is assumed. **Figure 10.3** shows four proposed treatment areas as follows:

**1)** An approximately 120-foot long PRB spanning across Main Street from the western corner of South Dutcher Street and Main Street, along the western edge of North Dutcher Street, and extending approximately 10 feet north of the 5 µg/L concentration contour of the PCE plume.

**2)** An approximately 50-foot long PRB spanning across South Dutcher Street from the western corner of South Dutcher and Main Street and extending approximately 10 feet to the east of the 5 µg/L concentration contour of the PCE plume. Injections at 29 total locations via roto-sonic drilling methods are estimated for both PRBs.

**3)** A treatment area of approximately 2,430 square feet where PCE concentrations exceed 5 µg/L in groundwater beneath the buildings at 49-53 Main Street. Injections at 26 locations via direct push drilling methods are estimated.

**4)** A treatment area of approximately 180 square feet where PCE concentrations exceed 10 µg/L in the yard and driveway at the rear of the buildings at 49-53 Main Street. Injections at 8 locations via direct push drilling methods are estimated. The first round of injections at this proposed treatment area is assumed to include the injection of liquid activated carbon in addition to the injection of chemical reductants and bio-amendments, to bound PFAS impacts. The second round of injections at this location is assumed to include the injection of chemical reductants and bio-amendments only.

A budgetary estimate was obtained from a specialized vendor for the cost of reductants, bio-amendments, and injection services based on the area and depth of the treatment zone and the associated contaminants. For costing purposes, an intermediate round of groundwater sampling between injection events (approximately 3 months following the first round of injections) is assumed. Samples will be analyzed for VOCs and PFAS and will be collected from the four (4) monitoring wells installed during the PDI, as well as from two existing sumps in the basement of 49 and 53 Main Street. Final decisions regarding well layout, use of permanent or temporary wells, and injection frequency will be made during remedy design.

**Groundwater Monitoring and Monitored Natural Attenuation:** It is assumed that after soil excavation work and two rounds of groundwater injections are complete, groundwater monitoring will be carried out for up to five (5) years. Groundwater sampling will be conducted at the four (4) monitoring wells installed during PDI, as well as two (2) existing sumps in the basements of 49 and 53 Main, to be analyzed for VOCs, PFAS, and MNA parameters. Groundwater sampling is assumed to be conducted semiannually and the results presented in an annual report.

## 10.3 ALTERNATIVE 3A: SOIL EXCAVATION TO RESIDENTIAL STANDARD WITH IN-SITU CHEMICAL OXIDATION OF GROUNDWATER

Alternative 3a, Soil Excavation to Residential Standard with ISCO of Groundwater, consists of the following components which are subsequently described in detail:

- PDI
- Soil excavation to residential standard
- On-Site and off-Site ISCO
- ICs and ECs, including preparation of an SMP
- LTM and reporting

**PDI:** Prior to implementation, a PDI will be conducted to support the remedial design of Alternative 3a. Pre-design activities will be similar to those outlined for Alternative 2, excluding flux mapping activities. PDI will include the installation of four (4) permanent groundwater monitoring wells and collection of baseline groundwater samples. Baseline groundwater samples will be tested for VOCs, PFAS, and MNA parameters, in addition to field parameters for pH, oxidation reduction potential, and DO. Additionally, PDI activities will include property and utility surveys to support excavation design. Soil samples will be collected from the proposed soil excavation area to further delineate the extent of PFAS in soil that exceeds residential standards and for waste characterization.

**Soil Excavation to Residential Standards:** Contaminated soil with PFAS concentrations above residential SCOs (8.8 ppb) at this property will be excavated. Impacted soil is estimated to be within a 1,740 square foot area; the approximate location of the excavation is shown in **Figure 10.1**. Excavation depth will vary pending results of additional investigation but will be no deeper than 4 feet and is estimated to be an average of 2 feet deep for cost estimating purposes. Following initial clearing of existing asphalt and brush, excavated soil will be directly loaded into trucks for off-Site transportation and disposal. Excavation dewatering and structural support are not anticipated. Documentation samples will be collected from the bottom of the excavation, on a frequency of one sample per 25 foot by 25 foot area. Upon completion of the excavation, suitable backfill material meeting DER-10 criteria will be placed and compacted in six-inch lifts to within 6 inches of existing grades. Topsoil will then be placed in areas that are currently vegetated, and asphalt will be placed in areas that are currently paved.

**On-Site and Off-Site In-Situ Chemical Oxidation:** Injection of chemical oxidants will be implemented to address on-Site and off-Site PCE-impacted groundwater. **Figure 10.4** shows the proposed treatment area of approximately 940 square feet where PCE concentrations exceed 100 µg/L in groundwater, located primarily within the building footprints of 49 & 53 Main Street. For costing purposes, it is assumed that injection activities will be performed with temporary injection points and that no permanent injection wells will be installed. Two rounds of injections at 12 locations via direct push drilling is assumed. Approximately two-thirds of the total chemical oxidants is estimated to be injected during the first round, with the remaining one-third to be injected during the second round. Splitting the proposed oxidant quantity into two rounds is expected to reduce the possibility of daylighting into the basement during injections. A budgetary estimate was obtained from a specialized vendor for the cost of the chemical oxidants based on the area and depth of the treatment zone and the associated contaminants. Final decisions regarding well layout, use of permanent or temporary wells, and injection frequency will be made during remedy design.

**IC and ECs:** ICs will likely include the implementation of land-use restrictions to control on-Site subsurface activity to minimize contaminant exposure. Land-use restrictions will be implemented through legal instruments such as deeds, easements, and/or permitting processes, and an SMP will be required. The existing SSDSs at 47 and 49 Main Street will continue to operate as ECs

**LTM and Reporting:** It is assumed that after soil excavation work and groundwater injections are complete, and IC/ECs are in place, groundwater monitoring will be carried out for up to 30 years. Groundwater sampling will be conducted at the four (4) monitoring wells installed during the PDI, as well as two (2) existing sumps in the basements of 49 and 53 Main Street, to be analyzed for VOCs and PFAS. Groundwater sampling is assumed to be conducted semiannually for the first five (5) years following completion of the remedial action and reduced to annual sampling for years 6 through 30. Monitoring results will be presented in an annual report.

## 10.4 ALTERNATIVE 3B: SOIL EXCAVATION TO RESIDENTIAL STANDARD WITH ENHANCED BIOREMEDIATION OF GROUNDWATER

Alternative 3b, Soil Excavation to Residential Standard with Enhanced Bioremediation of Groundwater, consists of the following components which are subsequently described in detail:

- PDI
- Soil excavation to Residential standard
- On-Site and off-Site enhanced bioremediation
- ICs and ECs, including preparation of an SMP
- LTM with MNA and reporting

**PDI:** A PDI will be conducted as described in Alternative 3a.

**Soil Excavation to Residential Standard:** Soil excavation will be conducted as described in Alternative 3a.

**On-Site and Off-Site Enhanced Bioremediation:** Injection of bio-amendments will be implemented to address on-Site and off-Site PCE-impacted groundwater. Figure 10.4 shows the proposed treatment area of approximately 940 square feet where PCE concentrations exceed 100 µg/L in groundwater, located primarily within the building footprints of 49 & 53 Main Street. For costing purposes, it is assumed that injection activities will be performed with temporary injection points and that no permanent injection wells will be installed. Two rounds of injections at 12 locations via direct push drilling is assumed. Approximately two-thirds of the total bio-amendments are estimated to be injected during the first round, with the remaining one-third to be injected during the second round. Splitting the proposed bio-amendment quantity into two rounds is expected to reduce the possibility of daylighting into the basement during injections. A budgetary estimate was obtained from a specialized vendor for the cost of the bio-amendments based on the area and depth of the treatment zone and the associated

contaminants. Final decisions regarding well layout, use of permanent or temporary wells, and injection frequency will be made during remedy design.

**IC and ECs:** ICs and ECs will be the same as described in Alternative 3a, and an SMP will be required.

**LTM with MNA and Reporting:** It is assumed that after soil excavation work and groundwater injections are complete, and IC/ECs are in place, groundwater monitoring will be carried out for up to 30 years. Groundwater sampling will be conducted at the four (4) monitoring wells installed during PDI, as well as two (2) existing sumps in the basements of 49 and 53 Main Street, to be analyzed for VOCs, PFAS, and MNA parameters. Groundwater sampling is assumed to be conducted semiannually for the first five (5) years following completion of the remedial action, with samples analyzed for MNA parameters annually. Groundwater sampling is assumed to be reduced to an annual basis for years 6 through 30 following completion of the remedial action. Monitoring results will be presented in an annual report.

## 10.5 ALTERNATIVE 4A: LOW-PERMEABILITY COVER SYSTEM WITH IN-SITU CHEMICAL OXIDATION OF GROUNDWATER

Alternative 4a, Low Permeability Cover System with ISCO of Groundwater, consists of the following components, which are subsequently described in detail:

- PDI
- Installation of low-permeability cover system
- On-Site and off-Site ISCO
- ICs and ECs, including preparation of an SMP
- LTM and reporting

**PDI:** Prior to implementation, a PDI will be conducted to support remedial design of Alternative 4a, including the installation of four (4) permanent groundwater monitoring wells and collection of baseline groundwater samples. Baseline groundwater samples will be tested for VOCs, PFAS, and MNA parameters, in addition to field parameters for pH, oxidation reduction potential, and DO. Additionally, PDI activities will include property and utility surveys to support remedial design. Soil samples will be collected from the proposed capping area for waste characterization.

**Implementation of Low Permeability Cover System:** Contaminated soil with PFAS concentrations above background levels (3.15 ppb) at this property will be contained under a low permeability cover system. The purpose of the cover system is to provide a direct exposure barrier to impacted soil and to minimize stormwater infiltration through the PFAS impacted soil. Currently, an asphalt road exists over an approximate 1,270 square foot area over impacted soil (**Figure 10.1**). This asphalt cover will remain in place as part of the cover system. The remaining area with PFAS impacted soil in an approximate 470 square foot area as shown in **Figure 10.1**. Soil in this area will be excavated to approximately 1-foot bgs to ensure existing ground elevations are matched following implementation of the cover system. Excavated soil will be direct loaded into trucks for off-Site transportation and disposal. Upon completion of the excavation to 1-foot bgs, the proposed capped area will be backfilled with crushed stone subbase and paved with 6 inches of asphalt. The cover system design will also include stormwater controls to ensure that the additional paved surface does not result in flooding of the adjacent buildings.

**On-Site and Off-Site In-Situ Chemical Oxidation:** Injection of chemical oxidants will be conducted as described in Alternative 3a.

**IC and ECs:** ICs will likely include the implementation of land-use restrictions to control on-Site subsurface activity to minimize contaminant exposure. Land-use restrictions will be implemented through legal instruments such as deeds, easements, and/or permitting processes, and an SMP will be required. The cover system will be considered an EC and it is assumed that annual site inspections of the low permeability cover system will be conducted for up to 30 years. The existing SSDSs at 47 and 49 Main Street will continue to operate as ECs. Periodic review will be conducted on an annual basis and be reported along with necessary IC and EC certifications in a periodic review report annually (unless otherwise specified by NYSDEC).

**LTM and Reporting:** It is assumed that after installation of the low permeability cover and groundwater injections are complete, and IC/ECs are in place, groundwater monitoring will be carried out for up to 30 years. Groundwater sampling will be conducted at the four (4) monitoring wells installed during PDI, as well as two (2) existing sumps in the basements of 49 and 53 Main Street, to be analyzed for VOCs and PFAS. Groundwater sampling is assumed to be conducted semiannually for the first five (5) years following completion of the remedial action and reduced to annual sampling for years 6 through 30. Monitoring results will be presented in an annual report.

## 10.6 ALTERNATIVE 4B: LOW PERMEABILITY COVER SYSTEM WITH ENHANCED BIOREMEDIATION OF GROUNDWATER

Alternative 4b, Low Permeability Cover System with Enhanced Bioremediation of Groundwater, will include the remedial activities described in Alternative 4a with the exception that impacted groundwater will be addressed with enhanced bioremediation rather than ISCO. Implementation of this alternative will include:

- PDI
- Installation of low permeability cover system
- On-Site and off-Site enhanced bioremediation
- ICs and ECs, including preparation of an SMP
- LTM and reporting

**PDI:** A PDI will be conducted as described in Alternative 4a.

**Implementation of Low Permeability Cover System:** Implementation of a low-permeability cover system will be conducted as described in Alternative 4a.

**On-Site and Off-Site Enhanced Bioremediation:** Injection of bio-amendments will be conducted as described in Alternative 3b.

**IC and ECs:** ICs and ECs will be the same as described in Alternative 4a, and an SMP will be required.

**LTM with MNA and Reporting:** It is assumed that after installation of the low permeability cover and groundwater injections are complete, and IC/ECs are in place, groundwater monitoring will be carried out for up to 30 years. Groundwater sampling will be conducted at the four (4) monitoring wells installed during PDI, as well as two (2) existing sumps in the basements of 49 and 53 Main Street, to be analyzed for VOCs, PFAS and MNA parameters. Groundwater sampling is assumed to be conducted semiannually for the first five (5) years following completion of the remedial action, with samples analyzed for MNA parameters annually. Groundwater sampling is assumed to be reduced to an annual basis for years 6 through 30 following completion of the remedial action. Monitoring results will be presented in an annual report.

## 10.7 ALTERNATIVE 5: IN-SITU CHEMICAL OXIDATION AND ENHANCED BIOREMEDIATION OF GROUNDWATER

Alternative 5, ISCO and Enhanced Bioremediation of Groundwater, consists of the following components which are subsequently described in detail:

- PDI
- On-Site and off-Site ISCO
- On-Site and off-Site enhanced bioremediation
- ICs and ECs, including preparation of an SMP
- LTM and reporting

**PDI:** A PDI will be conducted to support the remedial design of Alternative 5. Pre-design activities will be similar to those outlined for Alternative 3 as it relates to groundwater. However, soil samples for the delineation of PFAS impacts and for waste characterization will not be included.

**On-Site and Off-Site In-Situ Chemical Oxidation and Enhanced Bioremediation:** Treatment of groundwater for this alternative will be conducted in two target areas using two separate treatment technologies (**Figure 10.5)**:

1) Injection of chemical oxidants will be implemented similarly to Alternative 3A and 4A within the approximately 940 square foot area located primarily under the buildings at 49 and 53 Main Street.
2) Injection of chemical reductants and bio-amendments will be implemented in an approximately 180 square foot area where PCE concentrations exceed 10 μg/L in the yard and driveway at the rear of the buildings at 49 & 53 Main Street, identified in Alternative 2. Injections would take place at four (4) locations via direct push drilling methods, with a second round of injections in two (2) locations.

**IC and ECs:** ICs will likely include the implementation of land-use restrictions to control on-Site subsurface activity to minimize contaminant exposure. Land-use restrictions will be implemented through legal instruments such as deeds, easements, and/or permitting processes, and an SMP will be required. The existing SSDSs at 47 and 49 Main Street will continue to operate as ECs.

**LTM and Reporting:** It is assumed that after groundwater injections are complete, and IC/ECs are in place, groundwater monitoring will be carried out for up to 30 years. Groundwater sampling will be conducted at the four (4) monitoring wells installed during the PDI, as well as two (2) existing sumps in the basements of 49 and 53 Main Street, to be analyzed for VOCs. Groundwater sampling is assumed to be conducted semiannually for the first five (5) years following completion of the remedial action and reduced to annual sampling for years 6 through 30. Monitoring results will be presented in an annual report.

## 10.8 ALTERNATIVE 6: LONG-TERM GROUNDWATER MONITORING AND INSTUTIONAL CONTROLS

Alternative 6, Long-Term Groundwater Monitoring and IC, consists of the following components, which are subsequently described in detail:

- PDI
- ICs and ECs, including preparation of an SMP
- LTM with MNA and reporting

**PDI:** To properly evaluate MNA, four (4) permanent groundwater monitoring wells will be installed. Following monitoring well installation, baseline groundwater samples will be collected and analyzed for VOCs, PFAS, and MNA parameters, in addition to field parameters for pH, oxidation reduction potential, and DO.

**IC and ECs:** ICs will likely include the implementation of land-use restrictions to control on-Site subsurface activity to minimize contaminant exposure. Land-use restrictions will be implemented through legal instruments such as deeds, easements, and/or permitting processes, and an SMP will be required. The existing SSDSs at 47 and 49 Main Street will continue to operate as ECs.

**LTM with MNA and Reporting:** It is assumed that after IC/ECs are in place, groundwater monitoring will be carried out for up to 30 years. Groundwater sampling will be conducted at the four (4) monitoring wells installed during PDI, as well as two (2) existing sumps in the basements of 49 and 53 Main Street, to be analyzed for VOCs, PFAS and MNA parameters. Groundwater sampling is assumed to be conducted semiannually for the first five (5) years following implementation of ICs/ECs, with samples analyzed for MNA parameters annually. Groundwater sampling is assumed to be reduced to an annual basis for years 6 through 30. Monitoring results will be presented in an annual report.

# 11.0 DETAILED ANALYSIS AND COMPARISON OF ALTERNATIVES

## 11.1 DETAILED ANALYSIS EVALUATION CRITERIA

The detailed analysis of each remedial action alternative for soil and groundwater was performed using the evaluation criteria identified in DER-10 (NYSDEC, 2010) and Subpart 375-1.8(f) (NYS, 2006), as well as the Green Remediation criteria in DER-31 (NYSDEC, 2011). **Table 11.1** includes a comparison of alternatives to the following criteria:

- Overall protectiveness of the public health and the environment
- Compliance with SCGs
- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, or volume of contamination through treatment
- Short-term impacts and effectiveness
- Implementability
- Cost effectiveness
- Land use
- Sustainability/Green Remediation (DER-31)

**Overall Protectiveness of the Public Health and the Environment**

This criterion evaluates the remedy's ability to protect the public health and the environment, assessing how risks posed through each existing or potential exposure pathway are eliminated, reduced, or controlled through removal, treatment, containment, ECs or ICs. The remedy's ability to achieve each of the RAOs is evaluated.

**Compliance with Standards, Criteria and Guidance.**

Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance. Chemical-specific SCGs were discussed in **Section 8. Table 11.2** summarizes the list of applicable SCGs used in the evaluation of alternatives against this criterion. **Table 11.1** indicates whether each RA meets, partially meets, or does not meet compliance with the Site-specific SCGs.

**Long-term Effectiveness and Permanence**.

This criterion evaluates the long-term effectiveness and permanence of the remedy after implementation. If contamination will remain on- or off-Site after the selected remedy has been implemented, the following items are evaluated:

1) magnitude of remaining risks
2) adequacy of the engineering and ICs intended to limit the risk
3) reliability of these controls
4) ability of the remedy to continue to meet RAOs in the future

**Reduction of Toxicity, Mobility, or Volume with Treatment.**

This criterion evaluates the remedy's ability to reduce the toxicity, mobility, or volume of Site contamination. Preference is given to remedies that permanently or significantly reduce the toxicity, mobility, or volume of the contamination.

**Short-Term Impacts and Effectiveness.**

This criterion evaluates the potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during construction and/or implementation. For the RAs discussed herein, the Site work will be conducted to reduce potential of short-term impacts by use of perimeter air monitoring; designated decontamination locations; erosion and sediment controls; temporary fencing around work areas, and personal protective equipment. Additionally, remedial action contractors will prepare and adhere to a construction work plan and HASP. The potential for short-term impacts increases with the duration of intrusive Site work. The duration of the remedial activities, along with indication as to whether the remedy will result in short-term effectiveness, is included in **Table 11.1.**

**Implementability.**

This criterion evaluates the technical and administrative feasibility of implementing the remedy. Technical feasibility includes the difficulties associated with construction and the ability to monitor the effectiveness of the remedy. Administrative feasibility includes the availability of the necessary personnel and materials, as well as the potential difficulties in obtaining operating approvals, access for construction, or other issues.

**Cost-Effectiveness.**

This criterion evaluates the overall cost effectiveness of the remedy. Capital and Site Management costs, were estimated based on the conceptual designs described in **Section 10.0** for each RA and are compared on a present worth (PW) basis.

**Land Use.**

This criterion evaluates the current, intended, and reasonably anticipated future use of the site and its surroundings when unrestricted levels would not be achieved under a proposed remedy.

**Sustainability / Green Remediation (DER-31).**

Evaluating compliance with DER-31 (NYSDEC, 2011) was conducted. This includes applying green remediation concepts, such as minimizing energy consumption; reducing GHG emissions; maximizing the reuse of land and the recycling of materials; and conserving natural resources such as soil, water, and habitat to the extent possible, while still implementing remedies that are protective of public health and the environment. Additionally, an assessment of the operational and embodied energy (converted to metric tons of emissions of carbon dioxide equivalents [$CO_2e$]) associated with remedial activities was performed to quantitatively compare the environmental impacts of each alternative using SiteWise™.

## 11.2 COST ANALYSIS PROCEDURES

Estimated costs presented in this FS Report are intended to be within the target accuracy range of minus 30 to plus 50 percent of actual cost (USEPA, 1988). Costs are presented as a PW and as a total cost for up to a 30-year period.

A summary of the costs for each alternative identifying capital and PW costs are included in each alternative's cost description. Each cost estimate includes a PW analysis to evaluate expenditures that occur over different time periods. The analysis discounts future costs to a PW and allows the cost of RAs to be compared on an equal basis. PW represents the amount of money that, if invested now and disbursed as needed, will be sufficient to cover costs associated with the remedial action over its planned life. Discount rates of 1.6% and 2.3% were used for a 5-year and 30-year period, respectively, as published by the Office of Management and Budget (OMB), to prepare the cost estimates (OMB, 2024).

Consistent with USEPA FS cost estimating guidance (USEPA, 2000), the RA cost estimates include costs for project management, remedial design, construction management, technical support, and scope contingency.

Project management includes planning and reporting, community relations support during construction or LTM, bid or contract administration, permitting (not already provided by the construction contractor), and legal services outside of ICs. Project management costs are generally between 5 and 10 percent of total direct costs.

Remedial design cost includes cost for collection and analysis of pre-design field data, engineering survey for design, treatability study/pilot-scale testing, and the various design components such as design analysis, plans, specifications, cost estimate, and schedule. Remedial design cost is generally between 6 and 20 percent of total direct costs.

Construction management cost includes cost associated with services to manage construction or installation of the remedial action, except any similar services provided as part of regular construction activities. Activities include review of submittals, design modifications, engineering survey for construction, documentation of quality control/quality assurance, and record drawings. Construction management cost is generally between 6 and 15 percent of total direct costs.

Technical support during LTM includes services to monitor, evaluate, and report progress of the remedial action. This includes oversight of LTM activities, and progress reporting and is generally between 10 percent and 20 percent of total annual costs depending on complexity of the remedial action (USEPA, 2000).

Scope contingency represents project risks associated with the feasibility-level of design presented in this FS Report. This type of contingency represents costs, unforeseeable at the time of estimate preparation, which are likely to become known as the remedial design proceeds. Scope contingency ranges from 10 to 25 percent, with higher values appropriate for alternatives with greater levels of cost growth potential (USEPA, 2000). A contingency of 20% for capital costs and 25% for annual and periodic costs was added to each of the alternatives described herein.

Project management, remedial design, and construction management costs, related to implementation of the chosen RA, presented in this FS Report are based upon the following matrix presented in the USEPA FS cost estimating guidance (USEPA, 2000).

| **Professional and Technical Costs as Percentage of Direct Costs** | | | | | |
|---|---|---|---|---|---|
| Indirect Cost | < $100K (%) | $100K-$500K (%) | $500K-$2M (%) | $2M-$10M (%) | >$10M (%) |
| Project Management | 10 | 8 | 6 | 5 | 5 |
| Remedial Design | 20 | 15 | 12 | 8 | 6 |
| Construction Management | 15 | 10 | 8 | 6 | 6 |

## 11.3 COMPARATIVE ANALYSIS OF ALTERNATIVES

The comparative analysis evaluates the relative performance of each alternative using the same criteria by which the detailed analysis of each alternative was conducted. The purpose of the comparative analysis is to identify the advantages and disadvantages of each alternative relative to one another to aid in selecting an overall remedy for the Site. In addition to the comparison provided in **Table 11.1**, a detailed narrative for the comparative analysis of RAs using the evaluation criteria identified in DER-10 (NYSDEC, 2010) and Subpart 375-1.8(f) (NYS, 2006) is presented below.

The comparative analysis presented in this document uses a qualitative approach to comparison, with the exceptions of comparing alternative costs and the required time to implement each alternative. A comparison of the capital and long-term costs associated with the RAs is presented in **Table 11.3**, with costs for each alternative summarized in **Tables 11.4** to **11.8**. Detailed cost analysis backup is provided in **Appendix G**.

**Overall Protectiveness of the Public Health and the Environment.**

The comparative analysis of alternatives relative to Overall Protection of the Public Health and the Environment takes into consideration current exposure pathways. Direct contact with PFAS contaminated soil may be a complete exposure pathway if residents of 49 Main Street perform gardening or yardwork in the fenced-in yard, although this area is quite small and much of the area with PFAS impacts is located under paved surfaces. Groundwater in the vicinity of the Site is not used as a source of drinking water. There is no complete exposure pathway to groundwater except for a construction or utility worker that may be required to conduct work in the subsurface. Soil vapor intrusion has been mitigated with SSDSs at 47 and 49 Main Street and does not appear to be a complete exposure pathway

for contaminant concentrations above guidance values for residential and commercial properties downgradient of the Site.

Alternative 2 addresses soil exposure pathways by removing soil with contamination exceeding background levels (3.15 ppb), while Alternatives 3a and 3b address soil exposure pathways by removing soil with contamination exceeding Residential SCOs. Alternatives 4a and 4b partially address soil exposure pathways by limiting contact with contaminated soils through containment of remaining accessible soils under a low permeability cover system.

Alternatives 2 through 5 address groundwater exposure pathways through targeted groundwater treatment, with Alternative 2 targeting the most areas, followed by Alternative 5, then Alternatives 3a, 3b, 4a and 4b.

Alternative 2 ranks the highest for overall protectiveness of the public health and the environment, followed in decreasing rating by Alternatives 3a and 3b, 4a and 4b, 5, 6 and 1.

**Compliance with Standard, Criteria, and Guidance.**

Alternative 1 does not include actions to address contamination at the Site. This remedy is not compliant with Site-specific and chemical-specific SCGs.

Alternative 2 will result in compliance with Site-specific and chemical-specific SCGs. Alternatives 3a through 6 will result in partial compliance with Site-specific SCGs. Alternatives 3a and 3b will leave contaminated soils on-Site and off-Site at concentrations above background levels (3.15 ppb) but meeting Residential SCOs, while Alternatives 4a and 4b will leave contaminated soils on-Site and off-Site above Residential SCOs, under a lower-permeability cover system. Alternatives 3a through 4b include targeted groundwater treatment to reduce time required to achieve SCGs, while Alternative 5 targets an additional area of treatment to further reduce time required to achieve SCGs. Alternatives 5 and 6 leave contaminated soil on-Site and off-Site at concentrations greater than SCGs. Alternative 6 leaves contaminated groundwater on-Site and off-Site at concentrations greater than SCGs with the expectation that SCGs may be met at some future time due to natural attenuation processes. Therefore, Alternative 2 ranks highest for meeting Site-specific and chemical-specific SCGs, followed in decreasing rating by Alternatives 3a and 3b, 4a and 4b, and 5.

**Long-Term Effectiveness and Permanence.**

Alternatives 1 and 6 rate the lowest at Long-Term Effectiveness and Permanence since little to no active remediation will occur for either alternative. Alternative 2 rates the highest for long-term effectiveness

and permanence given that soils with contamination exceeding background levels will be permanently removed, the proposed area of groundwater treatment is larger than other alternatives thereby increasing the reduction of site-related groundwater contamination, and the proposed remedy includes a PRB for reduction in plume mobility downgradient. Alternatives 3a and 3b rate the next highest given that soil will be excavated to the Residential SCOs and permanently removed. Alternatives 4a and 4b rate third for long-term effectiveness and permanence, given that contaminated soil will remain in place on-Site and off-Site rather than permanently removed. Alternative 5 rates fourths for long-term effectiveness and permanence, given that contaminated soil will not be addressed, however an additional target treatment area for groundwater will be implemented compared to Alternatives 3a through 4b.

It is worth noting, however, that the CSM indicates that a likely source of PFAS impacts to surface soil is through air deposition from dryer vents, therefore it is conceivable that Alternatives that include soil removal may not be permanent, as these areas could get re-contaminated by continued cleaning of clothing that contains PFAS. Therefore, if we consider permanency for groundwater remediation only, Alternative 2 rates highest, followed by Alternative 5 then Alternatives 3a through 4b.

**Reduction of Toxicity, Mobility, or Volume with Treatment.** Alternatives 1 and 6 rate the lowest at Reduction of Toxicity, Mobility, or Volume with Treatment, as little to no active remediation will occur for either alternative. Any reduction in toxicity or volume of contaminants would occur from natural attenuation processes.

Alternative 2 rates the highest for reduction in toxicity, mobility, and volume. This is the only alternative that addresses PFAS contamination in groundwater, through the implementation of liquid activated carbon to reduce plume mobility. Alternative 2 also addresses a larger area of PCE-impacted groundwater than Alternatives 3a through 4b, thereby having an increased reduction in contaminant toxicity and volume. Alternative 2 is followed in decreasing rating by Alternatives 3a and 3b, Alternative 5, and Alternatives 4a and 4b. Alternatives 3a through 4b address the same area of PCE-impacted groundwater, either through in-situ chemical oxidation or enhanced bioremediation. Alternatives 3a through 4b also address the same area of PFAS-impacted soil, however Alternatives 3a and 3b rank higher for reduction of toxicity, mobility, or volume given PFAS-impacted soil above Residential SCOs is completely removed with implementation of excavation for these alternatives. Although PFAS-impacted soil remains on-Site and off-Site in Alternatives 4a and 4b, impacted soils are contained under a low permeability cover, which could reduce the infiltration of rainwater through PFAS-impacted soils, thereby reducing the mobility of contamination into groundwater. Alternative 5 does not reduce toxicity,

mobility or volume of PFAS impacted soil, however it does address a larger area of PCE-impacted groundwater than Alternatives 3a through 4b.

**Short-Term Impacts and Effectiveness.**

Although ECs will be used and a HASP will be prepared and followed, there is potential for short-term adverse impacts and risks upon the community, the workers, and the environment during the construction of Alternatives 2, 3a, 3, 4a, 4b, 5 and 6. Alternative 1 is not expected to cause adverse short-term impacts as the alternative does not include intrusive activities.

Alternative 6 is ranked as having the least adverse short-term impacts followed by Alternative 5, as the only intrusive activities included are the installation of monitoring wells (both alternatives), and drilling activities for injection of amendments (Alternative 5). Alternatives 2, 2a, 3, 4a and 4b all include adverse short-term impacts for the soil remedy where care would be needed to avoid impacting surrounding buildings, properties, and day-to-day public activities. Of these alternatives, due to the size of the soil remedial area and the duration of operations, Alternative 2 would have the highest short-term impacts followed by 3a and 3b, then 4a and 4b.

Alternatives 3a through 4b, however, all address the same-sized proposed groundwater treatment area, the duration of injections of chemical oxidants is expected to be longer than that of bio-amendments, due to larger volume of injection material required for ISCO compared to enhanced bioremediation. Due to differences in duration of implementations of remedies, Alternative 6, the least adverse for short-term impacts, is followed in ranking by Alternative 5, Alternatives 4b and 4a, then Alternatives 3b and 3a. Alternative 2 is ranked as having the most adverse short-term impacts due to the longest duration and largest areal extent of intrusive activities of the proposed remedy.

Rankings of Alternatives with regards to short-term effectiveness are generally inverse to rankings with regards to short-term adverse impacts. Alternatives that include soil remedies will be effective immediately. Additionally, remediation of impacted groundwater via ISCO mechanisms implemented in Alternatives 3a, 4a, and 5 are expected to result in contaminant breakdown more rapidly than the combined ISCR and bioremediation mechanisms implemented in Alternatives 2, 3b, and 4b. Alternative 6 is ranked lowest for short-term effectiveness as its only short-term component is in the implementation of ICs.

**Implementability.**

There would be little to no difficulties implementing Alternatives 1, 5, or 6. Administrative difficulties for Alternatives 3a through 6 would include implementing deed restrictions to limit potential future use

of the Site. Administrative difficulties for Alternatives 2 through 6 will also include cooperation with city officials and property owners for the installation of permanent groundwater monitoring wells.

Alternative 2 is expected to have the most technical and administrative difficulties due to this alternative proposing the largest expanse of treatment area for impacted groundwater, proposed injection points in roadways and town sidewalks. Alternative 2, along with Alternatives 3a through 4b will also have technical and administrative difficulties associated with the soil remedy that will require structural analysis and/or protection of nearby structures and restrict use of a yard and driveway during construction. Implementation of Alternatives 3a through 5 are expected to have comparable technical difficulties associated with conducting injections through basement floors. Time frames to complete injections are expected to be longer for Alternatives 3a, 4a and 5 compared to 3b and 4b due to differences in injection volumes between ISCO and enhanced bioremediation, however the number of locations, proposed treatment area, and number of rounds of injections is common among all five alternatives, with slightly more injection locations for Alternative 5. Alternatives 4a and 4b are expected to have higher administrative difficulties than Alternatives 3a and 3b upon completion of the remedy, due to the annual EC inspections and certifications for the low permeability cover system that will be required for these alternatives.

Alternative 1 is ranked highest for implementability, followed in decreasing order by Alternatives 6, 5, 3a and 3b, 4a and 4b, and 2.

**Cost-Effectiveness.**

The estimated capital cost and present worth of the RAs (as summarized from **Table 11.3**) are as follows:

| Remedial Alternatives | Capital Cost | Present Worth |
|---|---|---|
| Alternative 1: No Further Action | $ 0 | $ 0 |
| Alternative 2: Soil Excavation to Pre-Disposal Conditions, with In-Situ Sorption, In-Situ Chemical Reduction, and Enhanced Bioremediation of Groundwater | $2,535,000 | $2,821,000 |
| Alternative 3a: Soil Excavation to Residential Standard with In-Situ Chemical Oxidation of Groundwater | $739,000 | $1,751,000 |
| Alternative 3b: Soil Excavation to Residential Standard with Enhanced Bioremediation of Groundwater | $551,000 | $1,605,000 |
| Alternative 4a: Low-Permeability Cover System with In-Situ Chemical Oxidation of Groundwater | $571,000 | $1,583,000 |
| Alternative 4b: Low-Permeability Cover System with Enhanced Bioremediation of Groundwater | $387,000 | $1,441,000 |
| Alternative 5: In-Situ Chemical Oxidation and Enhanced Bioremediation of Groundwater | $478,000 | $1,532,000 |
| Alternative 6: Long-Term Groundwater Monitoring and Institutional Controls | $63,000 | $1,117,000 |

A summary of the costs associated with these alternatives is presented in **Tables 11.4** through **11.8**. Detailed cost analysis backup is provided in **Appendix G**.

**Land Use.**

As established in **Section 6**, exposure pathways at the Site include potential exposure to subsurface soil, groundwater, and soil vapor intrusion. Each Alternative currently addresses soil vapor intrusion as mitigation systems are already in place. Alternatives 2, 3a, and 3b address potential exposure pathways

to soil by removing contaminated subsurface soils to background or residential use SCOs, preventing future exposure and minimizing the source of groundwater PFAS contamination. Alternatives 4a and 4b address potential soil exposure pathways by limiting direct contact with subsurface soils through implementation of a low permeability cover system. Infiltration of rainwater through PFAS-impacted soils will be reduced, thereby also reducing the mobility of PFAS contamination into groundwater, but land use will have restrictions. For Alternatives 2 through 3b, the combination of removal or containment of PFAS-impacted soil with targeted groundwater injection treatments meets current and foreseeable Land Use. Alternatives 4a and 4b rank next highest for Land Use. Alternatives 1, 5 and 6, however, do not address potential soil exposure pathways, and therefore do not meet current or foreseeable land use.

**Sustainability/Green Remediation (DER-31).**

The environmental impacts of each remedial alternative were calculated using SiteWise™ (SiteWise™ outputs included in **Appendix H**). Environmental footprint analyses for each alternative include calculations of GHG emissions, total energy use, air emissions of pollutants (nitrogen oxides, sulfur oxides, and particulate matter), water consumption, resource consumption, and worker safety ratings. Inputs considered during the calculations of these metrics include the production of required treatment or construction materials, transportation of materials, equipment, and personnel, on-Site equipment operation, and waste management. Total GHG emissions for each RA are as follows:

| Remedial Alternatives | Pre-Design Investigation (metric ton $CO_2e$) | Implementation (metric ton $CO_2e$) | Long Term Monitoring (metric ton $CO_2e$) | Total GHG Emissions (metric ton $CO_2e$) |
|---|---|---|---|---|
| Alternative 1: No Further Action | 0 | 0 | 0 | 0 |
| Alternative 2: Soil Excavation to Pre-Disposal Conditions, with In-Situ Sorption, In-Situ Chemical Reduction, and Enhanced Bioremediation of Groundwater | 12 | 101 | 22 | 135 |
| Alternative 3a: Soil Excavation to Residential Standard with In-Situ Chemical Oxidation of Groundwater | 12 | 31 | 69 | 112 |
| Alternative 3b: Soil Excavation to Residential Standard with Enhanced Bioremediation of Groundwater | 11 | 36 | 88 | 135 |
| Alternative 4a: Low-Permeability Cover System with In-Situ Chemical Oxidation of Groundwater | 10 | 19 | 69 | 98 |
| Alternative 4b: Low-Permeability Cover System with Enhanced Bioremediation of Groundwater | 10 | 11 | 88 | 109 |
| Alternative 5: In-Situ Chemical Oxidation and Enhanced Bioremediation of Groundwater | 9 | 12 | 69 | 90 |
| Alternative 6: Long-Term Groundwater Monitoring and Institutional Controls | 9 | 0 | 88 | 97 |

Note: $CO_2e$ = carbon dioxide equivalent

As shown above, Alternative 1 rates highest on sustainability because no action would be taken to address the impacts at the Site. Alternative 5 rates second highest on sustainability, as there would be no hauling contaminated materials off site, and less laboratory samples than Alternative 6. Alternative 6 rates third having a higher emissions footprint than Alternative 5. Minimal emissions are required for

the implementation of monitoring wells, however there are higher emissions for LTM due to a greater number of lab samples than Alternative 5. Alternatives 4b and 4a rate fourth and fifth, respectively, because of the small footprint and shallow depth of soil to be excavated and replaced with asphalt, and the shorter duration of the bioremediation compared to the ISCO for groundwater. Alternative 3a rates sixth mostly due to an increased quantity of soil to be transported and disposed and a larger production of asphalt compared to Alternative 4b and 4a. Alternative 2 and 3b rate lowest for sustainable / green remediation. Alternative 2 rates low because it would require significant resources for additional transportation and disposal of excavated soil and fuel for equipment and water for multiple injections of amendments into groundwater. Alternative 3b rates low due to an increased quantity of soil to be transported and disposed and larger production of asphalt compared to other options, paired with a high emissions value for LTM due to a larger sampling effort. For alternatives 3a, 3b, 4a, 4b, 5 and 6, LTM accounts for a large portion of total GHG emissions. The emissions factors are high because of the impact of Laboratory samples. SiteWise calculates the impacts of lab samples based on the cost of sample, rather than what kind of test is being performed. It is expected for these results to vary from the output given by SiteWise. Another portion of the LTM component is personnel transportation. The 30-year time frame for LTM allows for the possibility to reduce overall emissions through use of electric vehicles.

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# FIGURES




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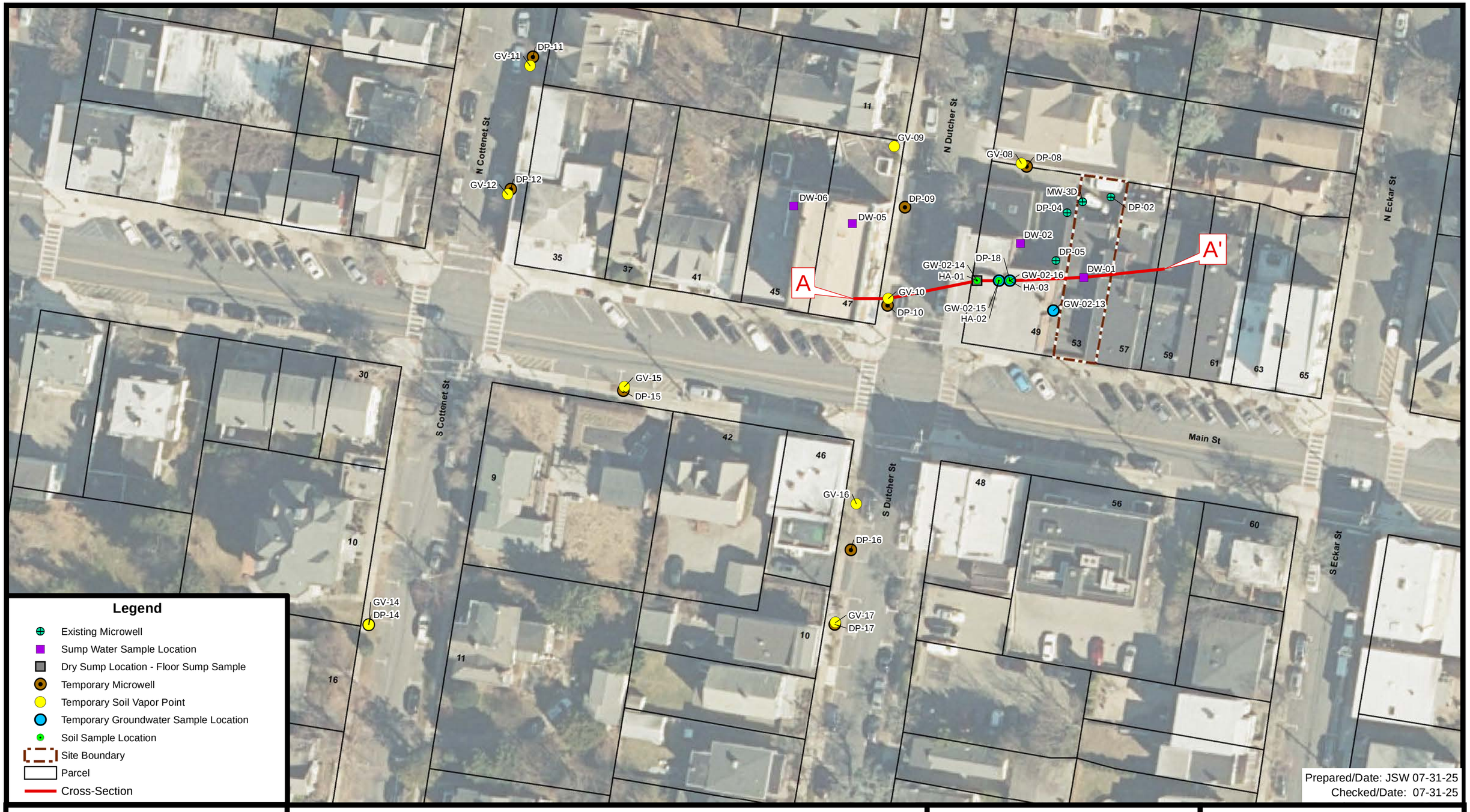
NYSDEC Site # 360175
Irvington Rugs and Cleaners
Irvington, New York

EARTH ENVIRONMENT
Engineering and Geology P.C.

Site Location

Project 3616216144 Figure 1.1

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NYSDEC Site # 360175
Irvington Rugs and Cleaners
Irvington, New York

1. Imagery - Westchester County color digital orthoimagery (2016) obtained from New York State GIS Clearinghouse at: gis.ny.gov.

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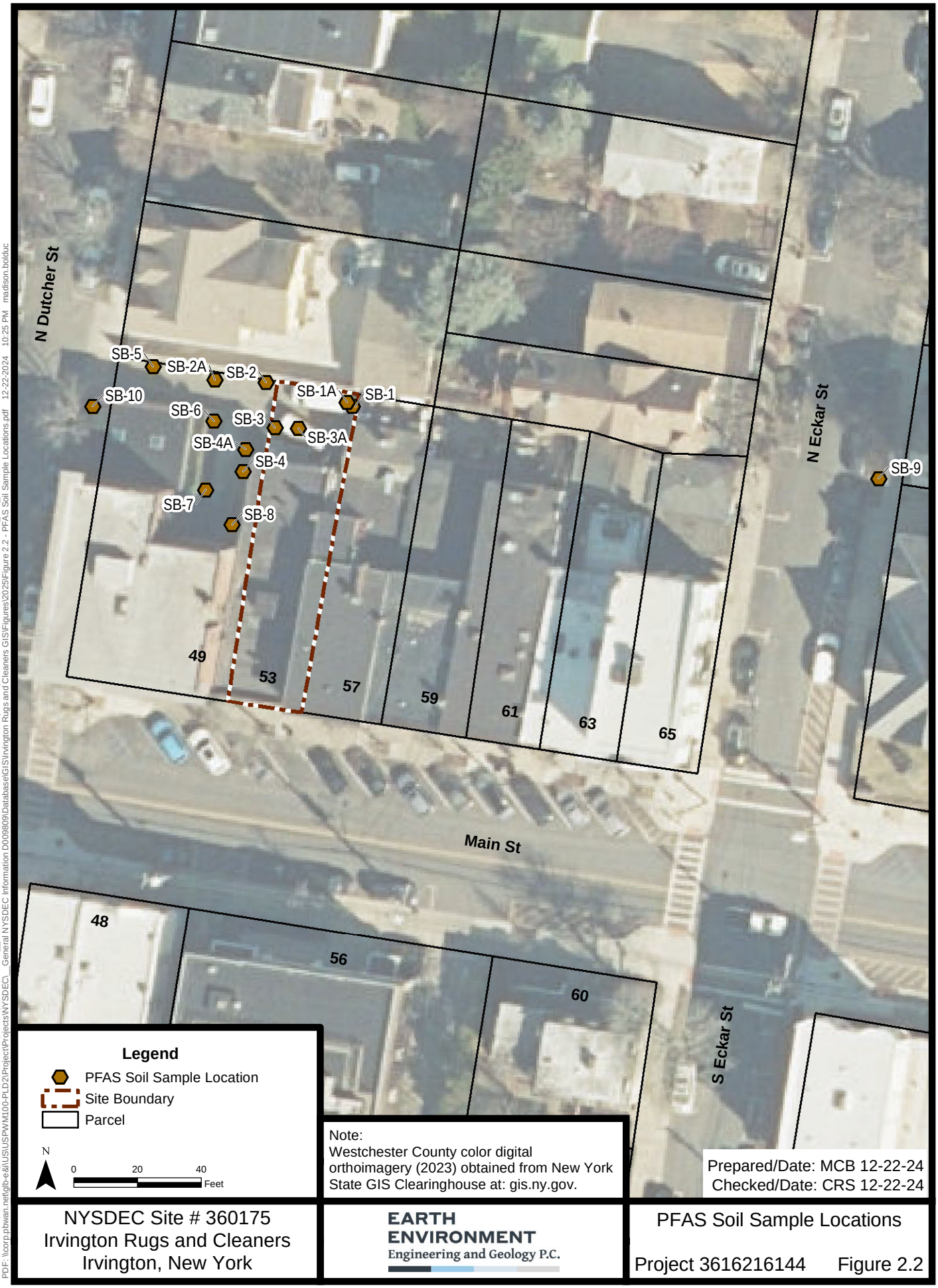
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Sampling Locations

Project 3616216144 Figure 2.1

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Note:
Westchester County color digital orthoimagery (2023) obtained from New York State GIS Clearinghouse at: gis.ny.gov.

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NYSDEC Site # 360175
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PFAS Soil Sample Locations

Project 3616216144 Figure 2.2

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NYSDEC Site # 360175
Irvington Rugs and Cleaners
Irvington, New York

Notes:
1. Groundwater measurements collected in March 2022
2. Groundwaer elevations in feet above mean sea level
3. Imagery - Westchester County color digital orthoimagery (2016) obtained from New York State GIS Clearinghouse at: gis.ny.gov

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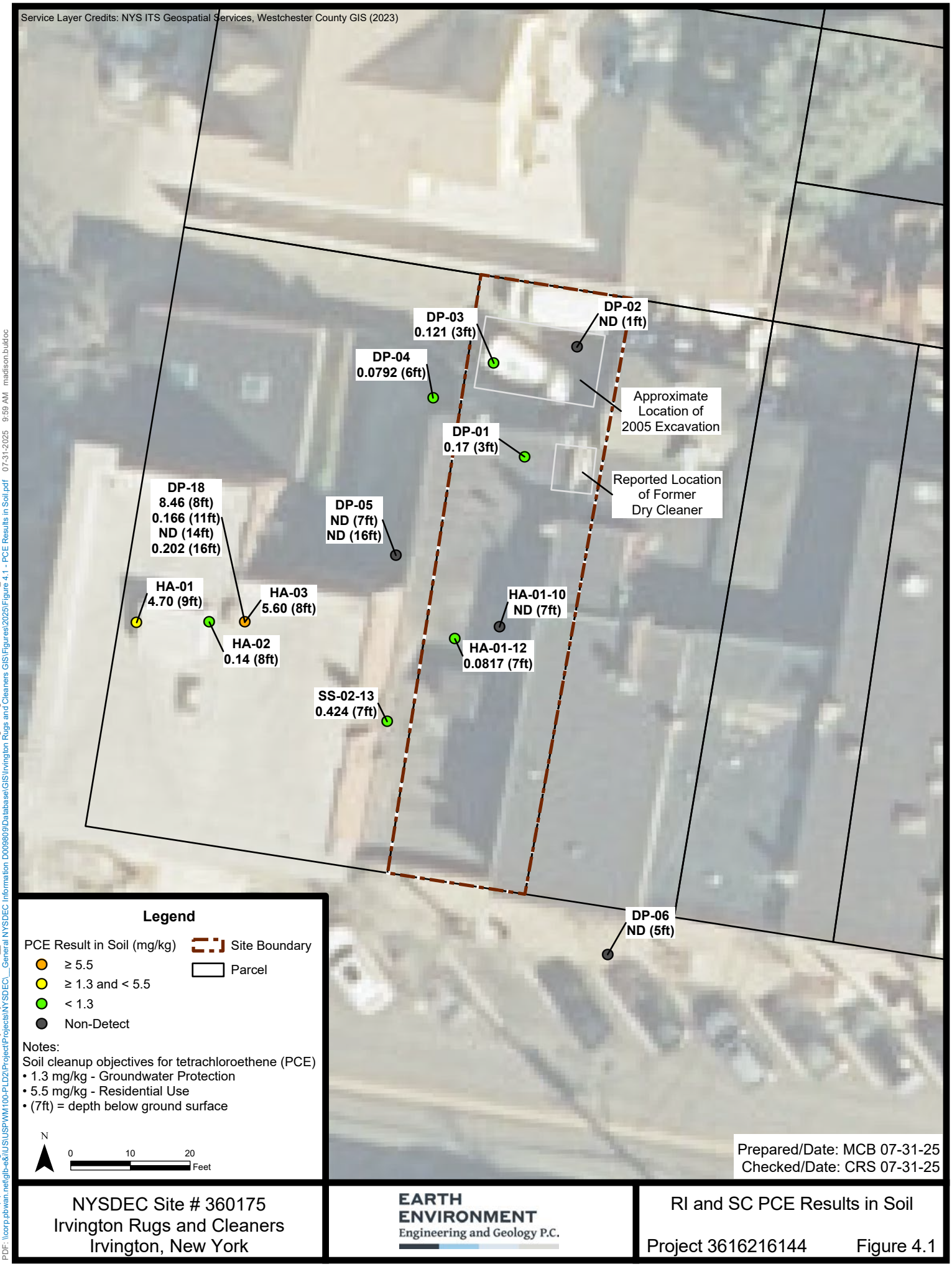
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Groundwater Elevations

Project 3616216144 Figure 3.1

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NYSDEC Site # 360175
Irvington Rugs and Cleaners
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RI and SC PCE Results in Soil

Project 3616216144 Figure 4.1

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## Legend

**Soil Sample Depth (ft)**

0
1
2
5

**PFOS Concentration (ppb)**

- Not Sampled
- 0 to 0.88
- > 0.88 to 3.15
- > 3.15 to 8.8
- > 8.8

- Potential Area of PFOS Exceeding Background
- Site Boundary
- Parcel

N

0 10 20 Feet

Note:
Westchester County color digital orthoimagery (2023) obtained from New York State GIS Clearinghouse at: gis.ny.gov.

| Guidance Value for Anticipated Site Use | PFOS Concentration in ppb |
|---|---|
| Unrestricted | 0.88 |
| Protection of Groundwater | 1.0 |
| Potential Background* | 3.15 |
| Residential | 8.8 |
| Restricted Residential | 44 |

Note: Concentrations from NYSDEC April 2023 PFAS Guidance. * = Potential Background = sample result from SB-9.

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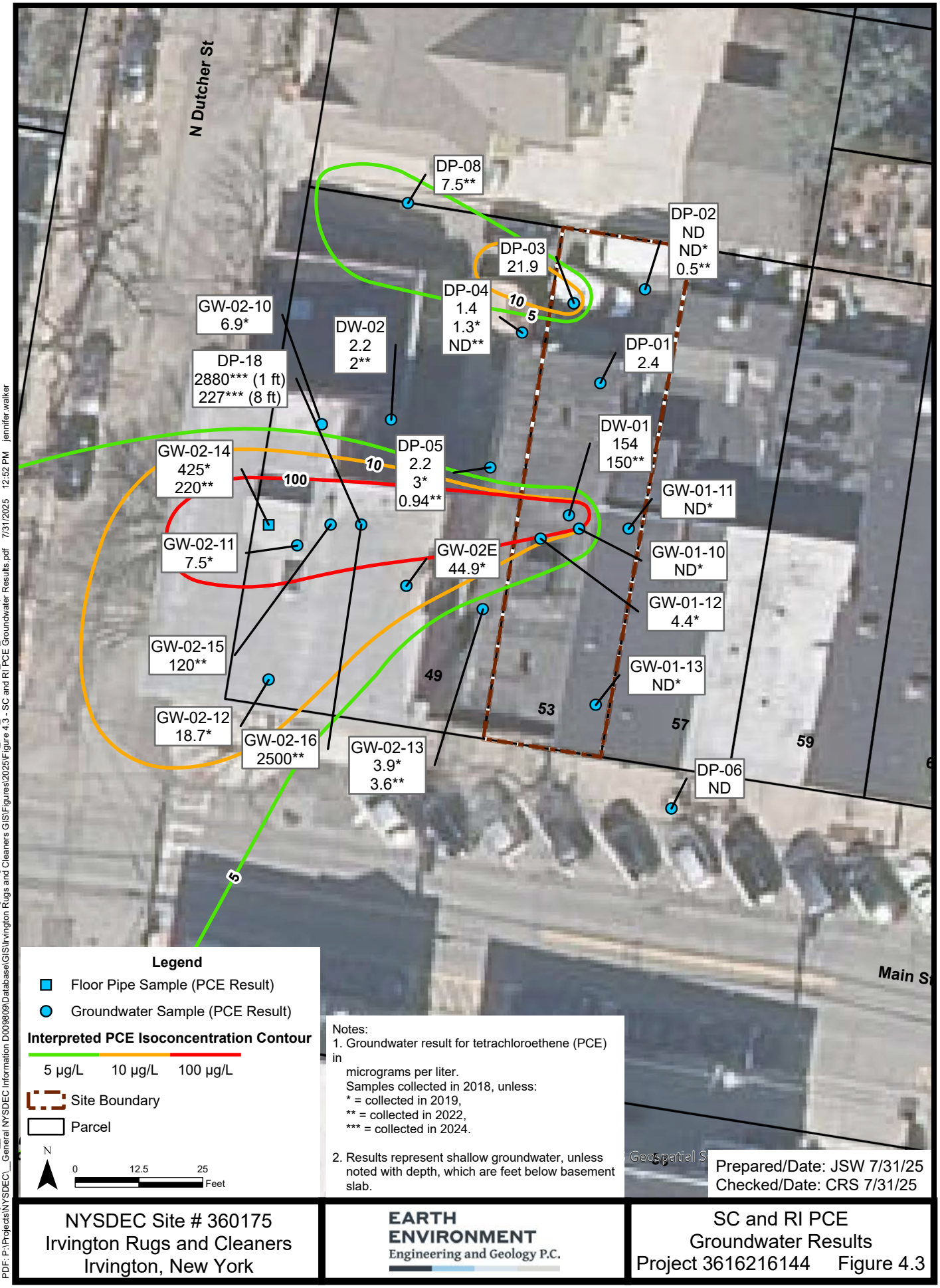
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PFOS Soil Sample Results

Project 3616216144 Figure 4.2

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Notes:
1. Groundwater result for tetrachloroethene (PCE) in micrograms per liter.
Samples collected in 2018, unless:
* = collected in 2019,
** = collected in 2022,
*** = collected in 2024.

2. Results represent shallow groundwater, unless noted with depth, which are feet below basement slab.

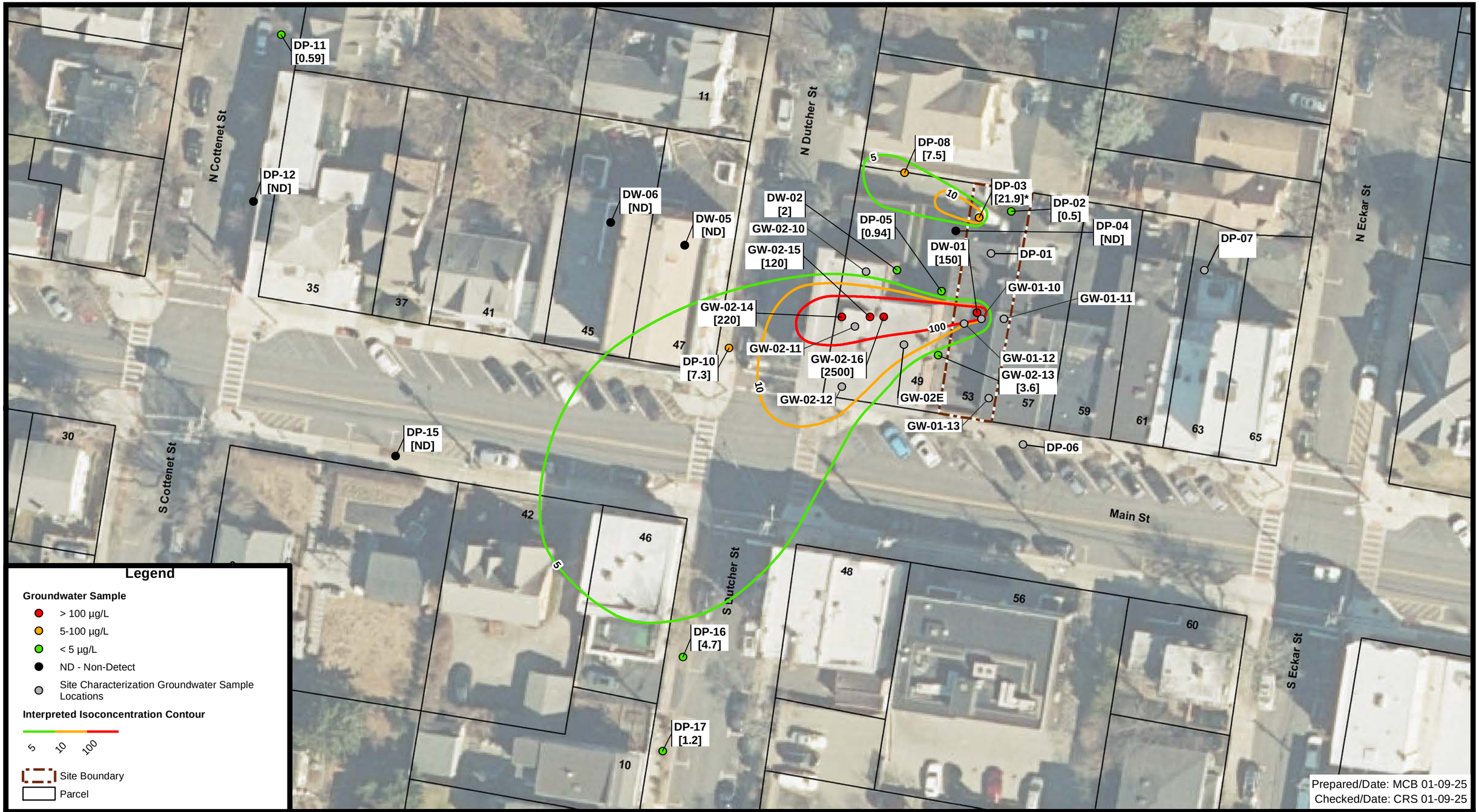
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Irvington, New York

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SC and RI PCE
Groundwater Results
Project 3616216144 Figure 4.3

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## Legend

**Groundwater Sample**

- > 100 µg/L
- 5-100 µg/L
- < 5 µg/L
- ND - Non-Detect
- Site Characterization Groundwater Sample Locations

**Interpreted Isoconcentration Contour**

5 10 100

Site Boundary

Parcel

Prepared/Date: MCB 01-09-25
Checked/Date: CRS 01-09-25

NYSDEC Site # 360175
Irvington Rugs and Cleaners
Irvington, New York

Notes:
1. Groundwater samples collected between January and May 2022. (Except *, which was collected in December 2018).
2. Groundwater results for tetrachloroethene (PCE) in micrograms per liter (µ/L).
3. Imagery - Westchester County color digital orthoimagery (2016) obtained from New York State GIS Clearinghouse at: gis.ny.gov.

N

0 25 50 Feet

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PCE Overburden Groundwater Results

Project 3616216144 Figure 4.4

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DW-06 [11.3]
DP-09 [160]
DP-08 [23]
MW-03D [2] [2.3**]
DP-04 [230] [331**]
DP-03 [480]*
DP-02 [12]
DP-07 [6.1]*
DP-05 [34]
DP-10 [30]
DP-15 [31]
N Lutcher St
Main St
49
53
57
59
61
63

**Legend**

PFOS (ng/L):
- 0 - 10
- >10 - 50
- >50 - 100
- >100

**DP-02** Well ID
**[12]** PFOS Result (ng/L)
PFOS 100 ng/L
PFOS 50 ng/L
(dashed where inferred)
Site Boundary
Parcel

Notes:
1. Results represent overburden groundwater; with the exception of MW-3D, which is a shallow bedrock well. Samples colllected in 2022; with the exception of * samples, which were collected as part of the Site Characterization in 2018 and 2019, and ** samples, which were collected in March 2024.
2. Westchester County color digital orthoimagery (2016) obtained from New York State GIS Clearinghouse at: gis.ny.gov.

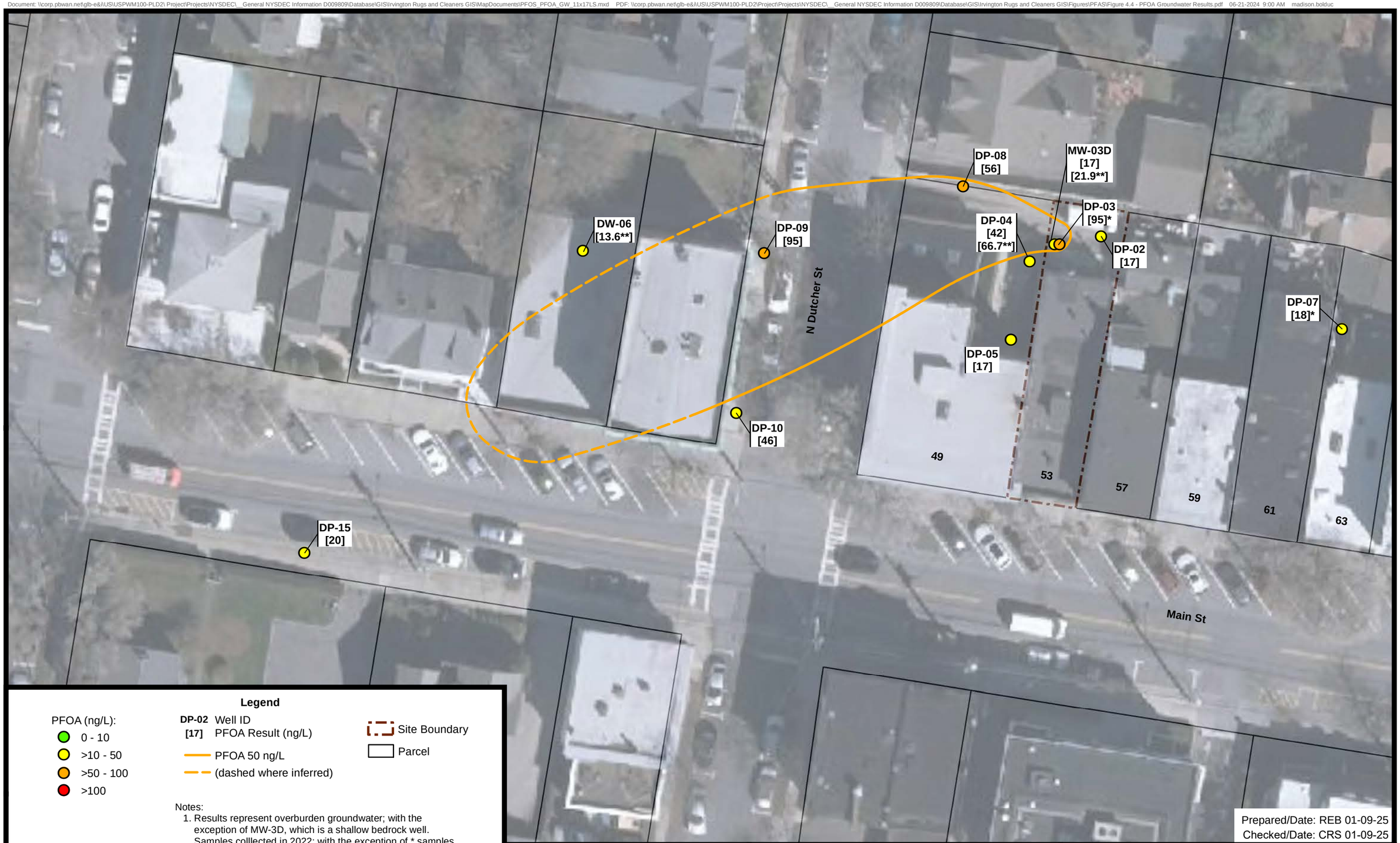
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0 15 30 Feet

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Groundwater Results for
Perfluorooctanesulfonic acid (PFOS)
Project 3616216144 Figure 4.5




**Legend**

PFOA (ng/L):
- 0 - 10
- >10 - 50
- >50 - 100
- >100

DP-02 Well ID
[17] PFOA Result (ng/L)
PFOA 50 ng/L
(dashed where inferred)

Site Boundary
Parcel

Notes:
1. Results represent overburden groundwater; with the exception of MW-3D, which is a shallow bedrock well. Samples colllected in 2022; with the exception of * samples, which were collected as part of the Site Characterization in 2018 and 2019, and ** samples, which were collected in March 2024.
2. Westchester County color digital orthoimagery (2016) obtained from New York State GIS Clearinghouse at: gis.ny.gov.

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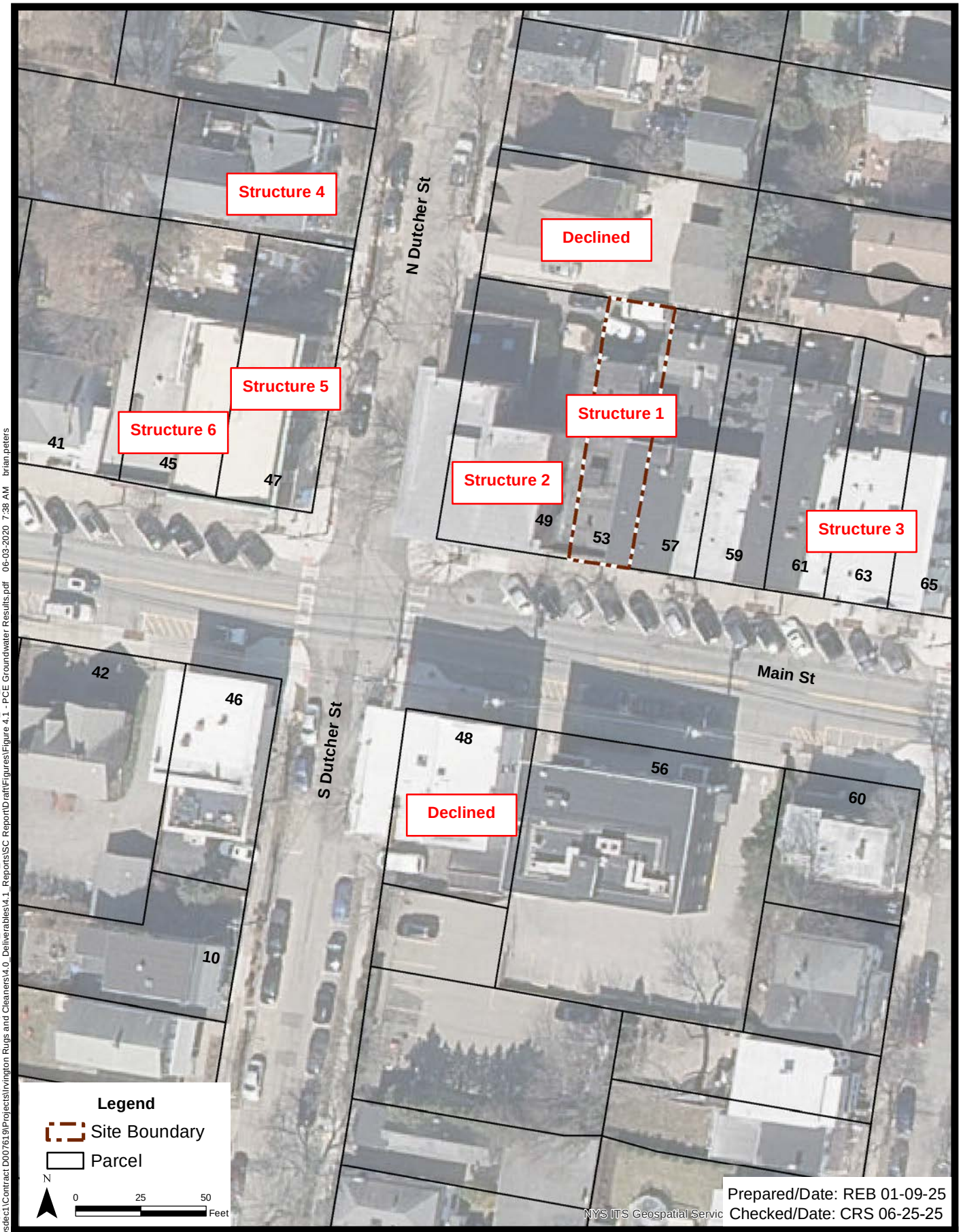
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NYSDEC Site # 360175
Irvington Rugs and Cleaners
Irvington, New York

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Groundwater Results for
Perfluorooctanoic acid (PFOA)
Project 3616216144 Figure 4.6



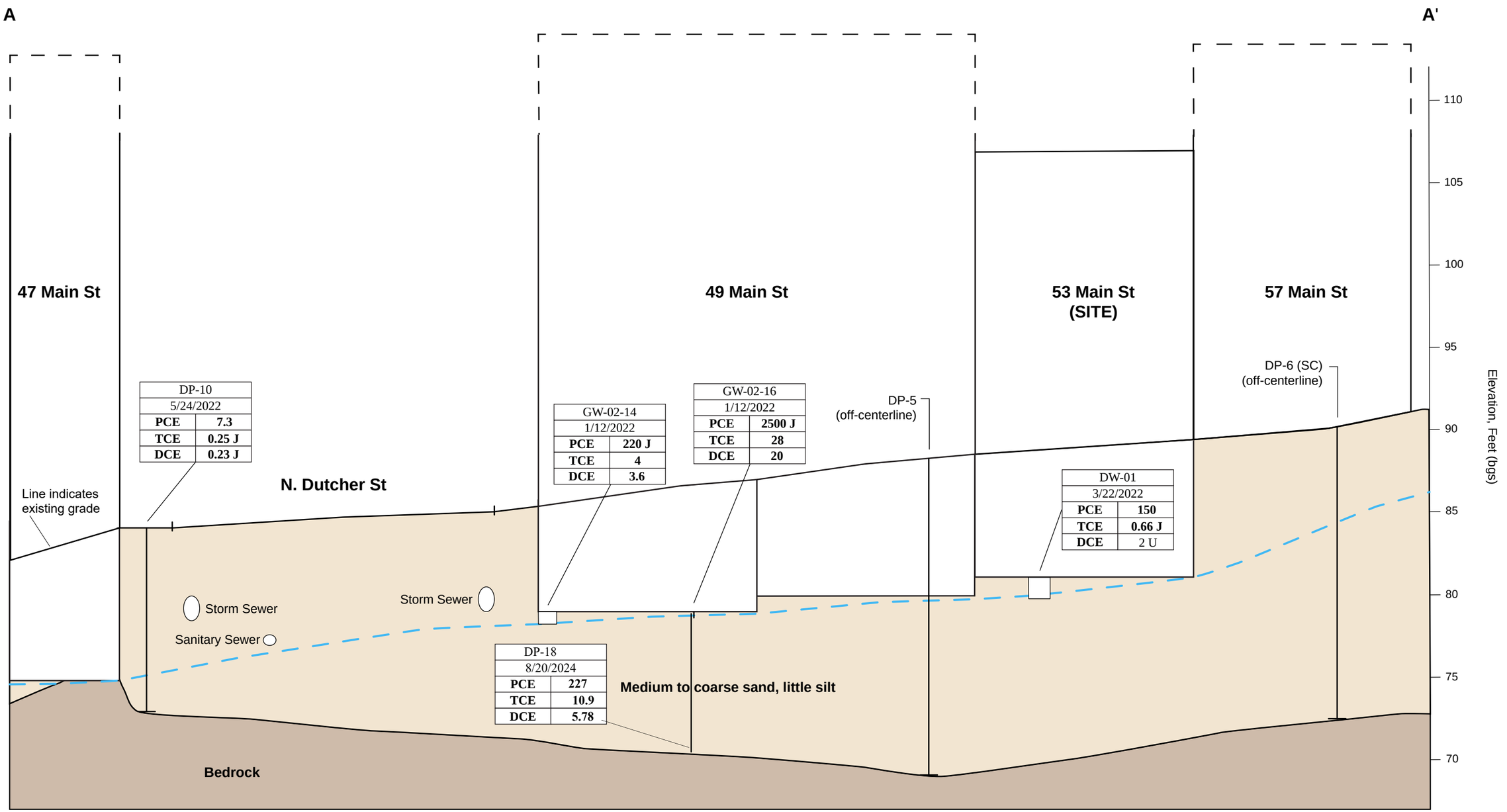

NYSDEC Site # 360175
Irvington Rugs and Cleaners
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Soil Vapor Intrusion Sampling

Project 3611181228 Figure 4.7

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Checked/Date: CRS 07-22-25

**Legend**

Approximate Groundwater Table

PCE - tetrachloroethene
TCE - trichloroethene
DCE - cis-1,2-dichloroethene

J - estimated
U - non-detect
Results in micrograms per liter

EARTH ENVIRONMENT
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NYSDEC Site #360175
Irvington Rugs and Cleaners

Interpreted Cross-Section A-A'

Project 3616216144

Figure 5.1




**Legend**

- Proposed extent of soil remediation for Alternatives 2 through 4b
- Existing Yard / Vegetated
- Existing Paved Area
- Site Boundary
- Parcel

N

0 10 20 Feet

Note:
Westchester County color digital orthoimagery (2023) obtained from New York State GIS Clearinghouse at: gis.ny.gov.

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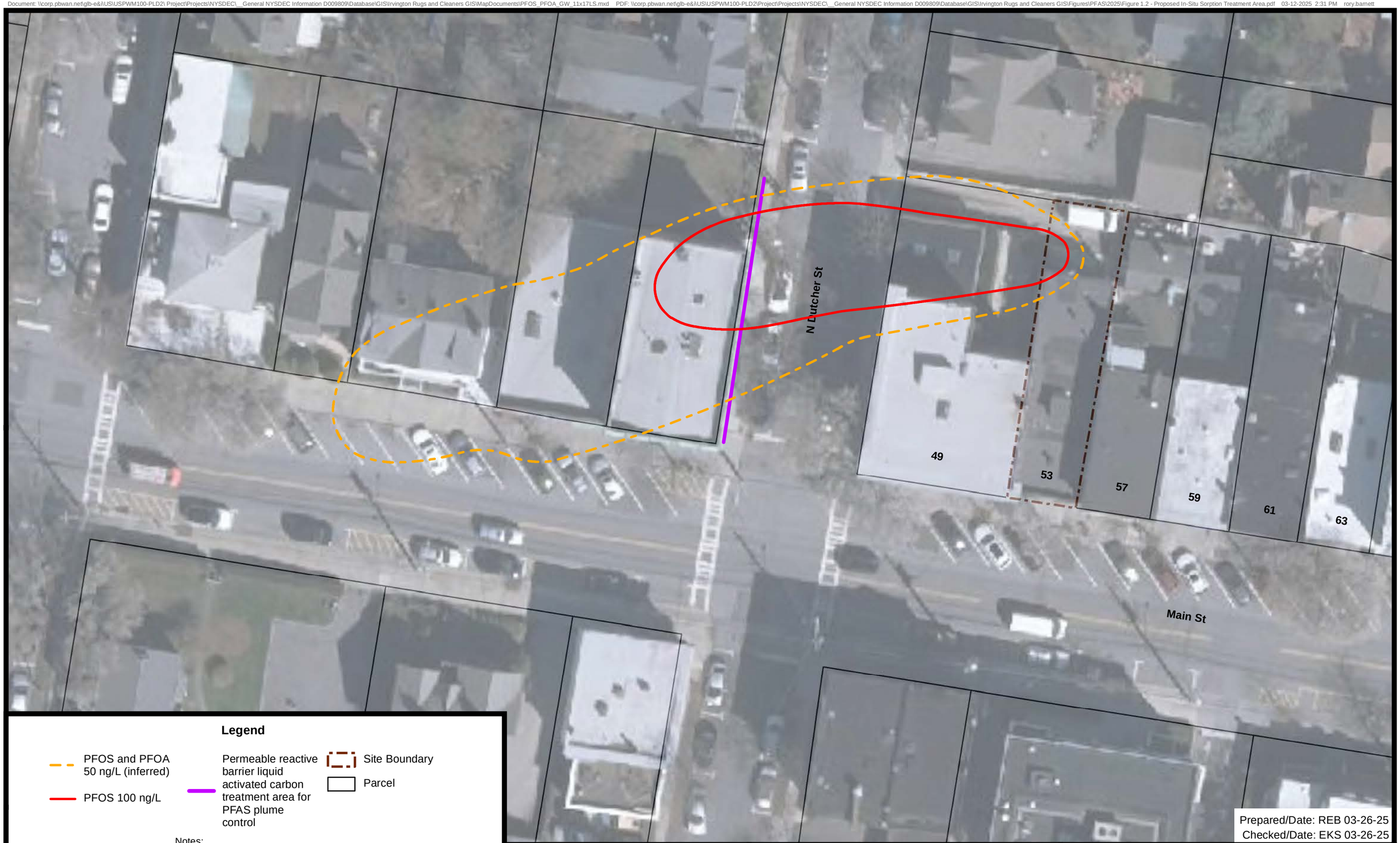
NYSDEC Site # 360175
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Irvington, New York

EARTH ENVIRONMENT
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Proposed Soil Remediation Area,
Alternatives 2 through 4b
Project 3616216144 Figure 10.1

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**Legend**

- PFOS and PFOA 50 ng/L (inferred)
- PFOS 100 ng/L
- Permeable reactive barrier liquid activated carbon treatment area for PFAS plume control
- Site Boundary
- Parcel

Notes:
1. Isoconcentration contours developed from analytical results of sampling conducted during the Remedial Investigation.
2. Westchester County color digital orthoimagery (2016) obtained from New York State GIS Clearinghouse at: gis.ny.gov.

N

0 15 30 Feet

Prepared/Date: REB 03-26-25
Checked/Date: EKS 03-26-25

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Irvington, New York

EARTH ENVIRONMENT
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Alternative 2
Proposed In-Situ Sorption Treatment Area
Project 3616216144 Figure 10.2




## Legend

**Interpreted Isoconcentration Contour (µg/L)**

5 10 100

Permeable reactive barrier treatment area for volatile organic compound (VOC) plume control

In-situ chemical reduction and enhanced bioremediation injection treatment areas for VOC-impacted groundwater

Site Boundary

Parcel

Prepared/Date: MCB 03-12-25
Checked/Date: CRS 03-12-25

NYSDEC Site # 360175
Irvington Rugs and Cleaners
Irvington, New York

Notes:
1. Isoconcentration contours developed from analytical results of sampling conducted during the Remedial Investigation
2. Imagery - Westchester County color digital orthoimagery (2016) obtained from New York State GIS Clearinghouse at: gis.ny.gov.

N

0 25 50
Feet

EARTH ENVIRONMENT
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Alternative 2 In-Situ Chemical Reduction and Enhanced Bioremediation Proposed Treatment Areas

Project 3616216144 Figure 10.3

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**Legend**

**Interpreted Isoconcentration Contour (µg/L)**

5 10 100

In-situ chemical oxidation or enhanced bioremediation injection treatment areas for VOC-impacted groundwater

Site Boundary

Parcel

Prepared/Date: MCB 03-26-25
Checked/Date: CRS 03-26-25

NYSDEC Site # 360175
Irvington Rugs and Cleaners
Irvington, New York

Notes:
1. Isoconcentration contours developed from analytical results of sampling conducted during the Remedial Investigation
2. Imagery - Westchester County color digital orthoimagery (2016) obtained from New York State GIS Clearinghouse at: gis.ny.gov.

N

0 25 50
Feet

EARTH ENVIRONMENT
Engineering and Geology P.C.

Alternatives 3a through 4b
Proposed Injections Treatment Area

Project 3616216144 Figure 10.4

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NYSDEC Site # 360175
Irvington Rugs and Cleaners
Irvington, New York

Notes:
1. Isoconcentration contours developed from analytical results of sampling conducted during the Remedial Investigation
2. Imagery - Westchester County color digital orthoimagery (2016) obtained from New York State GIS Clearinghouse at: gis.ny.gov.

N

0 25 50 Feet

EARTH ENVIRONMENT
Engineering and Geology P.C.

Alternative 5
Proposed Injections Treatment Area

Project 3616216144 Figure 10.5

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# TABLES

**Table 2.1: Summary of Remedial Investigation Activities**

| LOCATION TYPE | Date | Sample Locations | RATIONALE | ANALYTICAL |
|---|---|---|---|---|
| Utility Clearance | 1/12/2022 (Interior)<br>3/22/2022 (Exterior) | 49 Main Street basement, DP/GV-008 to DP/GV-017 | To locate utilities to evaluate preferential migration pathways (piping, etc.) inside and outside 49 Main St, and to avoid striking or penetrating sub-grade utilities while conducting subsurface explorations. | NA |
| Interior Activities at 49 Main Street | 1/12/2022 | Dry sump on west side of basement and concrete depression on east side of basement. | Cleaned out dry sump and depression of sediment to mitigate potential exposure pathways within 49 Main Street and evaluate potential migration paths from sump. | NA |
| 49 Main Street Basement Soil Samples | 1/12/2022 | Soil samples HA-01 from below dry sump and HA-02 and HA-03 from below slab. | To assess presence/absence of VOC contamination in soil below dry sump and at select locations below basement slab. | VOCs - Soil |
| 49 Main Street Basement Water Samples | 1/12/2022 | Water samples GW-02-14 from drain pipe in dry sump, GW-02-13 from depression, GW-02-15 from core hole HA-02, and GW-02-16 from core hole HA-03. | To assess water within dry sump, open depression, and below the slab (anticipated to represent groundwater or groundwater seeps). | VOCs - Water |
| Interior Sump Water Samples | 3/22/2022, 12/20/2022, 3/21/2023, and 3/8/2024 | DW-01 (53 Main St.) DW-02 (49 Main St.), DW-05 (47 Main St.), and DW-06 (45 Main St.). | Sump water is presumed to be groundwater and samples collected to evaluate groundwater concentrations below buildings. | VOCs (and one sample for PFAS) - Water |
| Exterior Soil Vapor Sampling - Downgradient | 3/23-25/2022 | GV-08 to GV-12 and GV-14 to GV-17 (GV-13 not collected due to utilities at proposed location) | To evaluate the potential presence of site related contaminants in soil vapor downgradient/cross gradient from the Site. | VOCs - Soil Vapor |
| Temporary Microwell Installation and Sampling | 3/23-25/2023<br>5/24-5/25/2022 | DP-008 to DP-017; VOC sample could not be collected from DP-009 and water samples could not be collected from DP-013 and DP-014 due to refusal above water table. | To evaluate the extent of the groundwater plume downgradient from the Site. VOC samples collected in March could not be analyzed and samples recollected in May. | VOCs, plus four samples for PFAS- Water |
| Existing Monitoring Wells Groundwater Sampling | 3/22/2022 | DP-002, DP-004 and DP-005. | To evaluate on-site and off-site groundwater quality, as well as collection of water levels to evaluate groundwater flow direction. | VOCs, SVOCs, and Metals - Water |
| Site Survey | 3/24/2022 | DP-008 to DP-012, DP-014 to DP-017, and GV-008 to GV-012, and GV-014 to GV-017 (GV-014 was located at DP-014 location). | To aid in evaluating groundwater flow directions and to position sample location on a Site figure. | NA |
| Install Bedrock Well | 5/25-26/2022 | MW-03D | To evaluate shallow bedrock groundwater contamination. | NA |
| Groundwater Sampling | 6/14/2022 | DP-002, DP-004, DP-005, and MW-03D | To evaluate PFAS in site wells and bedrock well. | PFAS - Water |
| Groundwater Sample Bedrock Well | 6/24/2022 | MW-03D | To evaluate VOCs in bedrock groundwater at the Site. | VOC - Water |
| PFAS Soil Sample | 9/27/2022 | SB-01 to SB-04 (multiple depths from 0 to 2 feet) | Soil sampling with hand tools to evaluate potential source of PFAS in groundwater | PFAS - Soil |
| Managing Investigation Derived Waste (IDW) | 11/11/2022 | IDW from all soil and groundwater locations, as well as from basement of 49 Main Street. | Remove waste material from Site. | NA |
| Installation of Sub-Slab Depressurization System (SSDS) at Structure 2. | 7/25-7/29/2022 | Structure 2 basement | Install SSDS to prevent vapor intrusion. Includes filling and capping concrete depression to prevent groundwater infiltration into basement and covering of basement sump pit. | NA |



Prepared by: CRS 4/14/2025
Checked by: JJM 4/18/25

**Table 2.1: Summary of Remedial Investigation Activities**

| LOCATION TYPE | Date | Sample Locations | RATIONALE | ANALYTICAL |
|---|---|---|---|---|
| Soil Vapor Intrusion Sampling | 12/21/2022 | Structures 2, 4, 5, and 6. Conduct soil vapor intrusion sampling at four NYSDOH selected properties: Structure 2 was SSDS indoor air confirmation sampling; Structure 5 had a full concrete slab and included two sub-slab samples; and, Structures 4 and 6 had full or partial dirt floor and consisted of just indoor air samples. Ambient air background also collected (plus QC). | Evaluate the potential for vapor migration into structures at three new buildings and evaluate effectiveness off SSDS installed at Structure 2. | VOCs - Soil Vapor and Air |
| Soil Vapor Intrusion Sampling | 3/21/2023 | Structures 2 and 6. Conduct soil vapor intrusion sampling at two properties. Indoor air and ambient background samples. | Collect repeat samples at Structure 2 due to questionable results and additional sampling at Structure 6 to confirm vapor intrusion is not occurring. | VOCs - Air |
| Additional PFAS Soil Sampling | 10/18/2023 | SB-1A to SB-4A and SB-05 to SB-10 (Multiple depths) | Collect soil samples with direct push technology and with hand tools to better delineate PFAS soil contamination. | PFAS - Soil |
| Installation of Sub-Slab Depressurization System (SSDS) at Structure 5. | 10/31-11/3/2023 | Structure 5 basement | Install SSDS to prevent vapor intrusion. Includes repair of section of concrete floor where a trench was dug and filled with dirt and filling and sealing of sump pit. | NA |
| Additional PFAS Groundwater Sampling | 3/8/2024 | MW-03D, DP-04 (and DW-06 listed above). | Collect additional groundwater and sump water samples to confirm concentrations at the Site and further downgradient from the Site. | PFAS - Groundwater |
| Pre-Design Investigation Soil and Groundwater Sampling | 8/20/2024 | DP-18 (multiple depths) | As part of injection well test, collected soil and groundwater samples below the basement of 49 Main Street to evaluate concentrations at depth. Full results reported under separate cover (EEEG, 2025a) | VOC- Soil and water |
| Soil Vapor Intrusion Sampling | 2/11/2025 | Structure 1. Conduct soil vapor intrusion sampling at the Site. | Re-sample soil vapor, basement air, first floor air, and ambient air to evaluate current concentrations. Results reported under separate cover (EEEG, 2025). | VOCs - Air |

Notes:
bgs = below ground surface
VOC = volatile organic compounds
SVOC = semi-volatile organic compound
SSDS = sub-slab depressurization system
QA/QC = quality assurance / quality control
FD =field duplicate, MS/MSD = matrix spike and matrix spike duplicate
PFAS = per and polyfluoroalkyl substances
NA = Not Applicable



Prepared by: CRS 4/14/2025
Checked by: JJM 4/18/25

**Table 2.2: Monitoring Well Details**

| Well ID | Northing | Easting | Ground Elevation | Casing Elevation | Casing height | DTW (ft)* | DTB (ft)* | Water Elevation | Notes |
|---|---|---|---|---|---|---|---|---|---|
| DP-002 | 804308.9 | 665997.9 | 89.32 | 89.19 | -0.13 | 3.8 | 12.15 | 85.39 | |
| DP-004 | 804300.4 | 665973.8 | 88.62 | 88.06 | -0.56 | 5.8 | 14.05 | 82.26 | |
| DP-005 | 804274.0 | 665967.6 | 87.9 | 87.63 | -0.27 | 7.85 | 15.3 | 79.78 | |
| DP-008 | 804325.8 | 665951.4 | 86.67 | 88.67 | 2.0 | 5.65 | 15 | 81.0 | Casing Elev estimated |
| DP-009 | 804303.2 | 665884.4 | 84.07 | 84.69 | 0.62 | 8.5 | 10 | 75.6 | |
| DP-010 | 804249.3 | 665874.9 | 83.24 | 83.24 | 0.0 | 7.65 | 11.05 | 75.6 | |
| DP-011 | 804386.0 | 665679.5 | 73.23 | 75.23 | 2.0 | 6.65 | 7.9 | 66.6 | Casing Elev estimated |
| DP-012 | 804313.2 | 665667.5 | 69.53 | 69.34 | 0.19 | 4.2 | 5.11 | 65.3 | |
| DP-014** | 804073.3 | 665589.1 | 68.81 | NA | NA | Dry | 9 | <59.81 | |
| DP-015 | 804202.1 | 665729.4 | 72.41 | 73.71 | 1.30 | 8 | 8.65 | 64.4 | Casing Elev estimated (survey-top grate) |
| DP-016 | 804114.6 | 665854.8 | 81.72 | 82.99 | 1.27 | 7.7 | 13.05 | 74.0 | |
| DP-017 | 804073.4 | 665845.9 | 81.45 | 82.00 | 0.55 | 9 | 14.28 | 72.5 | |
| MW-3D | 804306 | 665982 | 88.7 | 88.53 | -0.17 | 9.1 | 25.85 | 79.6 | Ground elevation estimated from SC survey |

*Depth to water (DTW) and depth to bottom (DTB) have been adjusted for casing height and indicate depth below ground surface for temporary wells.
**DP-014 no well set (dry at 9 ft below ground surface)
Locations surveyed by Lawson Surveying and Mapping on March 24, 2022; with the exception of MW-3D.
Groundwater elevations collected by MACTEC on March 24, and 25 2022; MW-3D measured on March 8, 2024.
Elevations in feet above mean sea level; North Atlantic Vertical Datum 88.
Northing and Easting in New York State Plane Coordinates.

**Table 4.1: Soil VOC Results**

| Event | | | | RI Investigation | | | | Pre-Design Investigation | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | | | | HA-01 | HA-01 | HA-02 | HA-03 | DP-18 | DP-18 | DP-18 | DP-18 | DP-18 |
| Field Sample Date | | | | 1/12/2022 | 1/12/2022 | 1/12/2022 | 1/12/2022 | 8/20/2024 | 8/20/2024 | 8/20/2024 | 8/20/2024 | 8/20/2024 |
| Field Sample ID | | | | 360175-HA001001 | 360175-HA001001D | 360175-HA002001 | 360175-HA003001 | 360175-DP018001-Soil | 360175-DP018001D-Soil | 360175-DP018004 | 360175-DP018007 | 360175-DP018009 |
| Field Sample Depth (ft btos) | | | | 1 | 1 | 1 | 1 | 1 | 1 | 4 | 7 | 9 |
| Qc Code | PGW | RES | COM | FS | FD | FS | FS | FS | FD | FS | FS | FS |
| **Parameter** | | | | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier |
| **VOCs (mg/Kg)** | | | | | | | | | | | | |
| 1,3,5-Trichlorobenzene | 8.4 | 47 | 190 | 0.001 U | 0.00085 U | 0.0013 U | 0.07 U | 0.0628 U | 0.0573 U | 0.044 U | 0.0437 U | **0.0105 J** |
| Bromomethane | NS | NS | NS | 0.0051 UJ | 0.0043 UJ | 0.0065 UJ | 0.13 UJ | **0.0588 J** | 0.115 U | **0.0341 J** | **0.0362 J-** | **0.0352 J** |
| cis-1,2-Dichloroethene | 0.25 | 59 | 500 | **0.00053 J** | **0.0004 J** | **0.00084 J** | **0.71** | **0.98** | **0.784** | 0.044 U | 0.0437 U | 0.0419 U |
| Hexachlorobutadiene | NS | NS | NS | -- | -- | -- | -- | 0.0628 U | 0.0573 U | 0.044 U | 0.0437 U | **0.0327 J** |
| Naphthalene | 12 | 100 | 500 | 0.0021 U | 0.0017 U | 0.0026 U | 0.14 U | 0.126 UJ | 0.115 U | 0.088 UJ | 0.0874 UJ | **0.021 J** |
| Tetrachloroethene | 1.3 | 5.5 | 150 | **3.4 J** | **4.7 J** | **0.14** | **5.6** | **8.46** | **5.87** | **0.166** | 0.0495 U | **0.202** |
| trans-1,2-Dichloroethene | 0.19 | 100 | 500 | 0.001 U | 0.00085 U | 0.0013 U | **0.015 J** | 0.0628 U | 0.0573 U | 0.044 U | 0.0437 U | 0.0419 U |
| Trichloroethene | 0.47 | 10 | 200 | **0.0013** | **0.0011** | **0.0026** | **0.16** | **1.54 J** | **0.457 J** | **0.00824 J** | 0.0437 U | 0.0419 U |
| **Other (mg/Kg)** | | | | | | | | | | | | |
| Diesel Range Organics | NS | NS | NS | -- | -- | -- | -- | **366** | -- | **33.1** | -- | -- |
| Gasoline Range Organics | NS | NS | NS | -- | -- | -- | -- | 5 U | -- | 5 U | -- | -- |
| Percent Solids (Percent) | NS | NS | NS | 83.9 | 83.9 | 84.1 | 76.6 | 78.3 | 77.4 | 90.8 | 91.5 | 90 |

Notes:
PGW = New York State Protection of Ground Water Standards
RES = New York State Residential Use Standards
COM = New York State Commercial Use Standards
ft btos = feet below top of basement slab
NS = No Standard
mg/Kg = milligrams per kilogram
FS = field sample, FD = field duplicate
-- = not analyzed

**Table 4.2: Soil PFAS Results**

| | | | | | Location | SB-01 | | SB-01 | | SB-01 | | SB-02 | | SB-02 | | SB-02 | | SB-03 | | SB-03 | | SB-03 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Sample Date | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | |
| | | | | | Field Sample ID | 360175-SB001-0.17 | | 360175-SB001-1.0 | | 360175-SB001-2.0 | | 360175-SB002-0.17 | | 360175-SB002-1.0 | | 360175-SB002-2.0 | | 360175-SB003-0.17 | | 360175-SB003-1.0 | | 360175-SB003-2.0 | |
| | | | | | Sample Depth (ft bgs) | 0.17 | | 1 | | 2 | | 0.17 | | 1 | | 2 | | 0.17 | | 1 | | 2 | |
| | | | | | QC Code | FS | | FS | | FS | | FS | | FS | | FS | | FS | | FS | | FS | |
| **Parameter** | **Unres** | **PG** | **Res** | **ResRes** | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **PFAS by method E1633 (micrograms per kilogram)** | | | | | | | | | | | | | | | | | | | | | | | |
| N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE) | NG | NG | NG | NG | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NG | NG | NG | NG | | 0.48 | U | 0.51 | U | 0.58 | U | 0.5 | U | **0.14** | J | 0.51 | U | 0.49 | U | **0.5** | J | 0.52 | U |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | NG | NG | NG | NG | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | | NA | |
| N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NG | NG | NG | NG | | 0.48 | U | 0.51 | U | 0.58 | U | **0.11** | J | **0.096** | J | 0.51 | U | 0.49 | U | **0.24** | J | 0.52 | U |
| Perfluorobutanesulfonic acid (PFBS) | NG | NG | NG | NG | | 0.48 | U | 0.51 | U | 0.58 | U | 0.5 | U | 0.48 | U | 0.51 | U | 0.49 | U | 0.5 | U | 0.52 | U |
| Perfluorobutanoic acid (PFBA) | NG | NG | NG | NG | | 0.48 | U | 0.51 | U | 0.58 | U | 0.5 | U | 0.48 | U | 0.51 | U | **0.088** | J | **0.081** | J | 0.52 | U |
| Perfluorodecanesulfonic acid (PFDS) | NG | NG | NG | NG | | 0.48 | U | 0.51 | U | 0.58 | U | 0.5 | U | **0.14** | J | 0.51 | U | 0.49 | U | **0.12** | J | 0.52 | U |
| Perfluorodecanoic acid (PFDA) | NG | NG | NG | NG | | **0.07** | J | **0.61** | | **0.88** | | 0.5 | U | **0.3** | J | **1.1** | | **0.56** | | **0.7** | | **0.87** | |
| Perfluorododecanoic acid (PFDoA) | NG | NG | NG | NG | | 0.48 | U | **0.28** | J | 0.58 | U | 0.5 | U | **0.4** | J | **0.13** | J | **0.7** | | **0.93** | | 0.52 | U |
| Perfluoroheptanesulfonic acid (PFHpS) | NG | NG | NG | NG | | 0.48 | U | 0.51 | U | 0.58 | U | 0.5 | U | 0.48 | U | 0.51 | U | 0.49 | U | 0.5 | U | 0.52 | U |
| Perfluoroheptanoic acid (PFHpA) | NG | NG | NG | NG | | 0.48 | U | 0.51 | U | 0.58 | U | 0.5 | U | 0.48 | U | 0.51 | U | **0.16** | J | **0.16** | J | **0.1** | J |
| Perfluorohexanesulfonic acid (PFHxS) | NG | NG | NG | NG | | 0.48 | U | 0.51 | U | 0.58 | U | 0.5 | U | 0.48 | U | 0.51 | U | 0.49 | U | 0.5 | U | 0.52 | U |
| Perfluorohexanoic acid (PFHxA) | NG | NG | NG | NG | | 0.48 | U | 0.51 | U | 0.58 | U | 0.5 | U | 0.48 | U | 0.51 | U | **0.23** | J | **0.15** | J | **0.11** | J |
| Perfluorononanoic acid (PFNA) | NG | NG | NG | NG | | 0.48 | U | 0.51 | U | 0.58 | U | 0.5 | U | 0.48 | U | **0.089** | J | **0.31** | J | **0.22** | J | **0.18** | J |
| Perfluorooctanesulfonamide (PFOSA) | NG | NG | NG | NG | | 0.48 | U | 0.51 | U | 0.58 | U | 0.5 | U | **0.45** | J | 0.51 | U | **0.17** | J | **2.6** | | **0.89** | |
| Perfluorooctanesulfonic acid (PFOS) | 0.88 | 1 | 8.8 | 44 | | **0.16** | J | **1.3** | | **2.5** | | **0.11** | J | **6.6** | | **13** | | **1.1** | | **15** | | **22** | |
| Perfluorooctanoic acid (PFOA) | 0.66 | 0.8 | 6.6 | 33 | | 0.48 | U | 0.51 | U | 0.58 | U | 0.5 | U | 0.48 | U | **0.21** | J | **0.22** | J | **0.34** | J | **0.24** | J |
| Perfluoropentanoic acid (PFPeA) | NG | NG | NG | NG | | 0.48 | U | **0.08** | J | **0.11** | J | 0.5 | U | **0.084** | J | **0.089** | J | **0.38** | J | **0.31** | J | **0.17** | J |
| Perfluorotetradecanoic acid (PFTeDA) | NG | NG | NG | NG | | 0.48 | U | **0.13** | J | 0.58 | UJ | 0.5 | U | **0.18** | J | 0.51 | U | **0.31** | J | **0.32** | J | 0.52 | UJ |
| Perfluorotridecanoic acid (PFTrDA) | NG | NG | NG | NG | | 0.48 | U | 0.51 | U | 0.58 | UJ | 0.5 | U | **0.14** | J | 0.51 | U | 0.49 | U | **0.16** | J | 0.52 | UJ |
| Perfluoroundecanoic acid (PFUnA) | NG | NG | NG | NG | | 0.48 | U | **0.3** | J | 0.58 | U | 0.5 | U | **0.34** | J | **0.17** | J | **0.12** | J | **0.34** | J | 0.52 | U |

**Notes:**
PFAS = per- and polyfluoroalkyl substances
Only detected compounds shown
ft bgs = feet below ground surface
FS = field sample; FD  Field Duplicate
Bold result = analyte detected
NG = No Guidance
NA = Not Analyzed
U = analyzed but not detected
UJ = analyzed but not detected, estimated value
J = estimated value; J+ = estimated value, biased high
Unres = NYSDEC Guidance - SOIL Unrestricted Use
PG = NYSDEC Guidance - SOIL Protection of Groundwater
Res = NYSDEC Guidance - SOIL Residential Use
ResRes = NYSDEC Guidance - SOIL Restricted Residential Use
Yellow highlighted cells indicate an exceedance of Unrestriced Use
Blue highlighted cells indicate an exceedance of PG
Orange highlighted cells indicate an exceedance of Residential Use
Only parameters with detections shown

**Table 4.2: Soil PFAS Results**

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **Location** | SB-04 | | SB-04 | | SB-04 | | SB-04 | | SB-1A | | SB-1A | | SB-1A | |
| | | | | | **Sample Date** | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | | | | **Field Sample ID** | 360175-SB004-0.17 | | 360175-SB004-1.0 | | 360175-SB004-2.0 | | 360175-SB004-D | | 360175-SB-1A-0 | | 360175-SB-1A-2 | | 360175-SB-1A-5 | |
| | | | | | **Sample Depth (ft bgs)** | 0.17 | | 1 | | 2 | | 2 | | 0 - 1 | | 2 - 3 | | 5 - 6 | |
| | | | | | **QC Code** | FS | | FS | | FS | | FD | | FS | | FS | | FS | |
| **Parameter** | **Unres** | **PG** | **Res** | **ResRes** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **PFAS by method E1633 (micrograms per kilogram)** | | | | | | | | | | | | | | | | | | |
| N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE) | NG | NG | NG | NG | NA | | NA | | NA | | NA | | 1.97 | U | 1.98 | U | 1.98 | U |
| N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NG | NG | NG | NG | **0.34** | J | **0.24** | J | 0.55 | U | **0.37** | J | 0.197 | U | 0.198 | U | 0.198 | U |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | NG | NG | NG | NG | NA | | NA | | NA | | NA | | 0.197 | U | 0.198 | U | 0.198 | U |
| N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NG | NG | NG | NG | 0.52 | U | 0.5 | U | 0.55 | U | 0.52 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| Perfluorobutanesulfonic acid (PFBS) | NG | NG | NG | NG | 0.52 | U | 0.5 | U | 0.55 | U | 0.52 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| Perfluorobutanoic acid (PFBA) | NG | NG | NG | NG | **0.088** | J | 0.5 | U | **0.099** | J | **0.083** | J | 0.788 | U | 0.791 | U | 0.794 | U |
| Perfluorodecanesulfonic acid (PFDS) | NG | NG | NG | NG | 0.52 | U | 0.5 | U | 0.55 | U | 0.52 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| Perfluorodecanoic acid (PFDA) | NG | NG | NG | NG | **0.3** | J | **0.1** | J | **0.41** | J | **0.3** | J | **0.466** | | 0.198 | U | 0.198 | U |
| Perfluorododecanoic acid (PFDoA) | NG | NG | NG | NG | **0.37** | J | **0.21** | J | 0.55 | U | **0.35** | J | **0.0864** | J+ | 0.198 | U | 0.198 | U |
| Perfluoroheptanesulfonic acid (PFHpS) | NG | NG | NG | NG | 0.52 | U | 0.5 | U | 0.55 | U | 0.52 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| Perfluoroheptanoic acid (PFHpA) | NG | NG | NG | NG | **0.11** | J | 0.5 | U | **0.099** | J | **0.093** | J | **0.113** | J | **0.0673** | J | **0.0507** | J |
| Perfluorohexanesulfonic acid (PFHxS) | NG | NG | NG | NG | 0.52 | U | 0.5 | U | 0.55 | U | 0.52 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| Perfluorohexanoic acid (PFHxA) | NG | NG | NG | NG | 0.52 | U | 0.5 | U | 0.55 | U | **0.098** | J | **0.152** | J+ | **0.117** | J+ | 0.198 | U |
| Perfluorononanoic acid (PFNA) | NG | NG | NG | NG | **0.11** | J | 0.5 | U | **0.14** | J | **0.089** | J | **0.149** | J+ | **0.514** | J+ | **0.364** | J+ |
| Perfluorooctanesulfonamide (PFOSA) | NG | NG | NG | NG | **0.96** | | **1.3** | | **0.19** | J | **1.2** | | 0.197 | U | 0.198 | U | 0.198 | U |
| Perfluorooctanesulfonic acid (PFOS) | 0.88 | 1 | 8.8 | 44 | **11** | | **6.8** | J+ | **14** | | **13** | | **3.68** | | **7.19** | | **0.601** | |
| Perfluorooctanoic acid (PFOA) | 0.66 | 0.8 | 6.6 | 33 | **0.43** | J | **0.19** | J | **0.37** | J | **0.48** | J | **0.195** | J+ | **0.178** | J+ | **0.221** | J+ |
| Perfluoropentanoic acid (PFPeA) | NG | NG | NG | NG | **0.14** | J | 0.5 | U | **0.21** | J | **0.15** | J | 0.394 | U | **0.13** | J+ | 0.397 | U |
| Perfluorotetradecanoic acid (PFTeDA) | NG | NG | NG | NG | **0.16** | J | **0.099** | J | 0.55 | UJ | **0.16** | J | 0.197 | U | 0.198 | U | 0.198 | U |
| Perfluorotridecanoic acid (PFTrDA) | NG | NG | NG | NG | **0.36** | J | **0.21** | J | 0.55 | UJ | **0.36** | J | 0.197 | U | 0.198 | U | 0.198 | U |
| Perfluoroundecanoic acid (PFUnA) | NG | NG | NG | NG | **0.26** | J | **0.092** | J | **0.48** | J | **0.24** | J | **0.1** | J+ | 0.198 | U | 0.198 | U |

**Notes:**
PFAS = per- and polyfluoroalkyl substances
Only detected compounds shown
ft bgs = feet below ground surface
FS = field sample; FD  Field Duplicate
Bold result = analyte detected
NG = No Guidance
NA = Not Analyzed
U = analyzed but not detected
UJ = analyzed but not detected, estimated value
J = estimated value; J+ = estimated value, biased high
Unres = NYSDEC Guidance - SOIL Unrestricted Use
PG = NYSDEC Guidance - SOIL Protection of Groundwater
Res = NYSDEC Guidance - SOIL Residential Use
ResRes = NYSDEC Guidance - SOIL Restricted Residential Use
Yellow highlighted cells indicate an exceedance of Unrestriced Use
Blue highlighted cells indicate an exceedance of PG
Orange highlighted cells indicate an exceedance of Residential Use
Only parameters with detections shown

**Table 4.2: Soil PFAS Results**

| | | | | | Location | SB-2A | | SB-2A | | SB-2A | | SB-3A | | SB-3A | | SB-3A | | SB-4A | | SB-4A | | SB-4A | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Sample Date | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | | | | Field Sample ID | 360175-SB-2A-0 | | 360175-SB-2A-2 | | 360175-SB-2A-5 | | 360175-SB-3A-0 | | 360175-SB-3A-0 D | | 360175-SB-3A-2 | | 360175-SB-3A-5 | | 360175-SB-4-0 | | 360175-SB-4-2 | | 360175-SB-4-5 | |
| | | | | | Sample Depth (ft bgs) | 0 - 1 | | 2 - 3 | | 5 - 6 | | 0 - 1 | | 0 - 1 | | 2 - 3 | | 5 - 6 | | 0 - 1 | | 2 - 3 | | 5 - 6 | |
| | | | | | QC Code | FS | | FS | | FS | | FS | | FD | | FS | | FS | | FS | | FS | |
| **Parameter** | **Unres** | **PG** | **Res** | **ResRes** | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **PFAS by method E1633 (micrograms per kilogram)** | | | | | | | | | | | | | | | | | | | | | | | |
| N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE) | NG | NG | NG | NG | | 1.99 | U | 1.99 | U | 1.97 | U | 2 | U | 1.98 | U | 1.99 | U | 1.98 | U | 1.98 | U | 1.98 | U | 1.99 | U |
| N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NG | NG | NG | NG | | **0.432** | J+ | 0.199 | U | 0.197 | U | 0.2 | U | 0.198 | U | 0.199 | U | **0.166** | J+ | **0.11** | J | **0.141** | J | 0.199 | U |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | NG | NG | NG | NG | | 0.199 | U | 0.199 | U | 0.197 | U | 0.2 | U | 0.198 | U | 0.199 | U | **0.0637** | J | 0.198 | U | 0.198 | U | 0.199 | U |
| N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NG | NG | NG | NG | | **0.2** | J+ | 0.199 | U | 0.197 | U | **0.111** | J+ | **0.0899** | J+ | 0.199 | U | **0.137** | J+ | 0.198 | U | **0.135** | J+ | 0.199 | U |
| Perfluorobutanesulfonic acid (PFBS) | NG | NG | NG | NG | | **0.0517** | J+ | **0.132** | J+ | **0.061** | J+ | 0.2 | U | 0.198 | U | 0.199 | U | 0.198 | U | **0.121** | J+ | 0.198 | U | 0.199 | U |
| Perfluorobutanoic acid (PFBA) | NG | NG | NG | NG | | 0.797 | U | 0.795 | U | 0.79 | U | 0.8 | U | 0.791 | U | 0.795 | U | 0.79 | U | **0.109** | J | 0.793 | U | 0.795 | U |
| Perfluorodecanesulfonic acid (PFDS) | NG | NG | NG | NG | | 0.199 | U | 0.199 | U | 0.197 | U | 0.2 | U | 0.198 | U | 0.199 | U | 0.198 | U | 0.198 | U | 0.198 | U | 0.199 | U |
| Perfluorodecanoic acid (PFDA) | NG | NG | NG | NG | | **1.66** | | 0.199 | U | 0.197 | U | **0.904** | | **0.866** | | **0.667** | | 0.198 | U | **0.262** | | **0.327** | | 0.199 | U |
| Perfluorododecanoic acid (PFDoA) | NG | NG | NG | NG | | **0.768** | J+ | 0.199 | U | 0.197 | U | **2.26** | J+ | **2.08** | J+ | 0.199 | U | 0.198 | U | **0.147** | J | **0.0865** | J | 0.199 | U |
| Perfluoroheptanesulfonic acid (PFHpS) | NG | NG | NG | NG | | 0.199 | U | **0.223** | J+ | 0.197 | U | 0.2 | U | 0.198 | U | 0.199 | U | 0.198 | U | 0.198 | U | 0.198 | U | 0.199 | U |
| Perfluoroheptanoic acid (PFHpA) | NG | NG | NG | NG | | 0.199 | U | **0.129** | J | 0.197 | U | **0.053** | J | **0.0658** | J | **0.226** | | 0.198 | U | 0.198 | U | 0.198 | U | 0.199 | U |
| Perfluorohexanesulfonic acid (PFHxS) | NG | NG | NG | NG | | **0.0563** | J | **0.128** | J | 0.197 | U | 0.2 | U | 0.198 | U | **0.0589** | J | 0.198 | U | 0.198 | U | 0.198 | U | 0.199 | U |
| Perfluorohexanoic acid (PFHxA) | NG | NG | NG | NG | | 0.199 | U | **0.117** | J+ | 0.197 | U | 0.2 | U | 0.198 | U | **0.0843** | J+ | 0.198 | U | 0.198 | U | 0.198 | U | 0.199 | U |
| Perfluorononanoic acid (PFNA) | NG | NG | NG | NG | | **0.122** | J+ | **2.85** | J+ | **0.289** | J+ | **0.557** | J+ | **0.467** | J+ | **0.108** | J+ | 0.198 | U | 0.198 | U | **0.11** | J+ | **0.07** | J+ |
| Perfluorooctanesulfonamide (PFOSA) | NG | NG | NG | NG | | **0.593** | | 0.199 | U | 0.197 | U | **0.238** | | **0.221** | | 0.199 | U | **0.141** | J | **0.118** | J | **0.197** | J | 0.199 | U |
| Perfluorooctanesulfonic acid (PFOS) | 0.88 | 1 | 8.8 | 44 | | **4.41** | | **4.08** | J | **0.279** | | **0.869** | | **0.854** | | **0.762** | | **0.451** | | **4.36** | | **8.67** | | **0.537** | |
| Perfluorooctanoic acid (PFOA) | 0.66 | 0.8 | 6.6 | 33 | | **0.163** | J+ | **1.18** | J+ | **0.12** | J+ | **0.157** | J+ | **0.221** | J+ | **0.558** | J+ | 0.198 | U | **0.122** | J+ | **0.109** | J+ | 0.199 | U |
| Perfluoropentanoic acid (PFPeA) | NG | NG | NG | NG | | 0.398 | U | **0.134** | J+ | 0.395 | U | 0.4 | U | 0.396 | U | **0.171** | J+ | 0.395 | U | 0.396 | U | 0.397 | U | 0.398 | U |
| Perfluorotetradecanoic acid (PFTeDA) | NG | NG | NG | NG | | **0.226** | | 0.199 | U | 0.197 | U | **0.665** | | **0.616** | | 0.199 | U | 0.198 | U | **0.0674** | J | 0.198 | U | 0.199 | U |
| Perfluorotridecanoic acid (PFTrDA) | NG | NG | NG | NG | | **0.0978** | J | 0.199 | U | 0.197 | U | **0.238** | | **0.194** | J | 0.199 | U | 0.198 | U | 0.198 | U | 0.198 | U | 0.199 | U |
| Perfluoroundecanoic acid (PFUnA) | NG | NG | NG | NG | | **0.358** | J+ | 0.199 | U | 0.197 | U | **0.837** | J+ | **0.794** | J+ | 0.199 | U | **0.0509** | J+ | **0.102** | J | **0.0656** | J | 0.199 | U |

**Notes:**
PFAS = per- and polyfluoroalkyl substances
Only detected compounds shown
ft bgs = feet below ground surface
FS = field sample; FD  Field Duplicate
Bold result = analyte detected
NG = No Guidance
NA = Not Analyzed
U = analyzed but not detected
UJ = analyzed but not detected, estimated value
J = estimated value; J+ = estimated value, biased high
Unres = NYSDEC Guidance - SOIL Unrestricted Use
PG = NYSDEC Guidance - SOIL Protection of Groundwater
Res = NYSDEC Guidance - SOIL Residential Use
ResRes = NYSDEC Guidance - SOIL Restricted Residential Use
Yellow highlighted cells indicate an exceedance of Unrestriced Use
Blue highlighted cells indicate an exceedance of PG
Orange highlighted cells indicate an exceedance of Residential Use
Only parameters with detections shown

**Table 4.2: Soil PFAS Results**

| | | | | | Location | SB-5 | | SB-5 | | SB-5 | | SB-5 | | SB-6 | | SB-6 | | SB-6 | | SB-6 | | SB-6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Sample Date | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | | | | Field Sample ID | 360175-SB-5-0 | | 360175-SB-5-0 D | | 360175-SB-5-2 | | 360175-SB-5-5 | | 360175-SB-6-0 | | 360175-SB-6-0.2 | | 360175-SB-6-1 | | 360175-SB-6-2 | | 360175-SB-6-5 | |
| | | | | | Sample Depth (ft bgs) | 0 - 1 | | 0 - 1 | | 2 - 3 | | 5 - 6 | | 0 - 0.2 | | 0.2 - 1 | | 1 - 2 | | 2 - 3 | | 5 - 6 | |
| | | | | | QC Code | FS | | FD | | FS | | FS | | FS | | FS | | FS | | FS | | FS | |
| **Parameter** | **Unres** | **PG** | **Res** | **ResRes** | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **PFAS by method E1633 (micrograms per kilogram)** | | | | | | | | | | | | | | | | | | | | | | | |
| N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE) | NG | NG | NG | NG | | 1.97 | U | 2.24 | U | 2 | U | 1.97 | U | **0.517** | J | **0.765** | J | 1.98 | U | 1.98 | U | 1.99 | U |
| N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NG | NG | NG | NG | | 0.197 | U | 0.224 | U | 0.2 | U | 0.197 | U | **0.161** | J | **0.179** | J | **0.0704** | J | 0.198 | U | 0.199 | U |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | NG | NG | NG | NG | | 0.197 | U | 0.224 | U | 0.2 | U | 0.197 | U | 0.199 | U | 0.2 | U | 0.198 | U | 0.198 | U | 0.199 | U |
| N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NG | NG | NG | NG | | **0.123** | J+ | **0.139** | J+ | 0.2 | U | 0.197 | U | **0.055** | J+ | **0.095** | J+ | **0.0731** | J+ | 0.198 | U | 0.199 | U |
| Perfluorobutanesulfonic acid (PFBS) | NG | NG | NG | NG | | 0.197 | U | **0.0755** | J | 0.2 | U | **0.0583** | J+ | **0.112** | J+ | 0.2 | U | 0.198 | U | 0.198 | U | 0.199 | U |
| Perfluorobutanoic acid (PFBA) | NG | NG | NG | NG | | 0.79 | U | 0.898 | U | 0.8 | U | 0.789 | U | **0.123** | J | 0.798 | U | 0.791 | U | 0.793 | U | 0.797 | U |
| Perfluorodecanesulfonic acid (PFDS) | NG | NG | NG | NG | | 0.197 | U | 0.224 | U | 0.2 | U | 0.197 | U | **0.179** | J | **0.0927** | J | 0.198 | U | 0.198 | U | 0.199 | U |
| Perfluorodecanoic acid (PFDA) | NG | NG | NG | NG | | **1.38** | | **1.66** | | 0.2 | U | 0.197 | U | **0.623** | | **0.385** | | **0.264** | | **0.233** | | **0.0524** | J |
| Perfluorododecanoic acid (PFDoA) | NG | NG | NG | NG | | **0.577** | J+ | **0.45** | | 0.2 | U | 0.197 | U | **0.89** | | **0.476** | | **0.149** | J | 0.198 | U | 0.199 | U |
| Perfluoroheptanesulfonic acid (PFHpS) | NG | NG | NG | NG | | 0.197 | U | 0.224 | U | **0.0973** | J+ | 0.197 | U | 0.199 | U | 0.2 | U | 0.198 | U | 0.198 | U | 0.199 | U |
| Perfluoroheptanoic acid (PFHpA) | NG | NG | NG | NG | | **0.112** | J | **0.104** | J | **0.0925** | J | 0.197 | U | **0.112** | J+ | **0.0718** | J+ | **0.0691** | J+ | **0.0552** | J+ | 0.199 | U |
| Perfluorohexanesulfonic acid (PFHxS) | NG | NG | NG | NG | | **0.0967** | J | **0.108** | J | **0.122** | J | 0.197 | U | **0.081** | J | **0.0516** | J | **0.0597** | J | 0.198 | U | 0.199 | U |
| Perfluorohexanoic acid (PFHxA) | NG | NG | NG | NG | | 0.197 | U | **0.0861** | J | **0.0697** | J+ | 0.197 | U | **0.32** | J | **0.208** | | **0.264** | J | **0.118** | J | 0.199 | U |
| Perfluorononanoic acid (PFNA) | NG | NG | NG | NG | | **0.185** | J+ | **0.187** | J+ | **1.29** | J+ | **0.138** | J+ | **0.209** | J+ | **0.141** | J+ | **0.0926** | J+ | **0.0626** | J+ | **0.195** | J+ |
| Perfluorooctanesulfonamide (PFOSA) | NG | NG | NG | NG | | **0.151** | J | **0.132** | J | 0.2 | U | 0.197 | U | **0.277** | | **0.336** | | **0.126** | J | 0.198 | U | 0.199 | U |
| Perfluorooctanesulfonic acid (PFOS) | 0.88 | 1 | 8.8 | 44 | | **12.3** | | **13.4** | | **18.4** | | **1.04** | | **6.06** | | **3.8** | | **4.71** | | **2.49** | | **0.848** | |
| Perfluorooctanoic acid (PFOA) | 0.66 | 0.8 | 6.6 | 33 | | **0.202** | J+ | **0.243** | J+ | **0.352** | J+ | **0.106** | J+ | **0.502** | J+ | **0.306** | J+ | **0.228** | J+ | **0.114** | J+ | **0.0784** | J+ |
| Perfluoropentanoic acid (PFPeA) | NG | NG | NG | NG | | **0.139** | J+ | **0.144** | J+ | **0.187** | J+ | 0.395 | U | **0.343** | J+ | **0.23** | J+ | **0.326** | J+ | **0.153** | J+ | 0.398 | U |
| Perfluorotetradecanoic acid (PFTeDA) | NG | NG | NG | NG | | **0.171** | J | **0.137** | J | 0.2 | U | 0.197 | U | **0.311** | | **0.172** | J | **0.0604** | J | 0.198 | U | 0.199 | U |
| Perfluorotridecanoic acid (PFTrDA) | NG | NG | NG | NG | | **0.0682** | J | **0.0687** | J | 0.2 | U | 0.197 | U | **0.338** | | **0.148** | J | 0.198 | U | 0.198 | U | 0.199 | U |
| Perfluoroundecanoic acid (PFUnA) | NG | NG | NG | NG | | **0.254** | J+ | **0.261** | | 0.2 | U | 0.197 | U | **0.865** | | **0.454** | | **0.199** | | **0.0913** | J | 0.199 | U |

**Notes:**
PFAS = per- and polyfluoroalkyl substances
Only detected compounds shown
ft bgs = feet below ground surface
FS = field sample; FD  Field Duplicate
Bold result = analyte detected
NG = No Guidance
NA = Not Analyzed
U = analyzed but not detected
UJ = analyzed but not detected, estimated value
J = estimated value; J+ = estimated value, biased high
Unres = NYSDEC Guidance - SOIL Unrestricted Use
PG = NYSDEC Guidance - SOIL Protection of Groundwater
Res = NYSDEC Guidance - SOIL Residential Use
ResRes = NYSDEC Guidance - SOIL Restricted Residential Use
Yellow highlighted cells indicate an exceedance of Unrestriced Use
Blue highlighted cells indicate an exceedance of PG
Orange highlighted cells indicate an exceedance of Residential Use
Only parameters with detections shown

**Table 4.2: Soil PFAS Results**

| | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **Location** | SB-7 | | SB-7 | | SB-8 | | SB-8 | | SB-8 | | SB-8 | | SB-8 | | SB-9 | | SB-9 | | SB-10 | |
| | | | | **Sample Date** | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | | | **Field Sample ID** | 360175-SB-7-0 | | 360175-SB-7-1 | | 360175-SB-8-0 | | 360175-SB-8-0.2 | | 360175-SB-8-1 | | 360175-SB-8-2 | | 360175-SB-8-5 | | 360175-SB-9-0 | | 360175-SB-9-2 | | 360175-SB-10-1 | |
| | | | | **Sample Depth (ft bgs)** | 0 - 1 | | 1 - 1.5 | | 0 - 0.2 | | 0.2 - 1 | | 1 - 2 | | 2 - 3 | | 5 - 6 | | 0 - 0.2 | | 1 - 2 | | 1 - 2 | |
| | | | | **QC Code** | FS | | FS | | FS | | FS | | FS | | FS | | FS | | FS | | FS | | FS | |
| **Parameter** | **Unres** | **PG** | **Res** | **ResRes** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **PFAS by method E1633 (micrograms per kilogram)** | | | | | | | | | | | | | | | | | | | | | | | | |
| N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE) | NG | NG | NG | NG | 2 | U | 2 | U | 1.99 | U | 1.99 | U | 1.99 | U | 1.99 | U | 1.98 | U | 2 | U | 2 | U | 1.98 | U |
| N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NG | NG | NG | NG | **0.0585** | J | 0.2 | U | **0.223** | | 0.199 | U | 0.199 | U | 0.199 | U | 0.198 | U | **2.17** | | **0.0967** | J | 0.198 | U |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | NG | NG | NG | NG | 0.2 | U | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U | 0.199 | U | 0.198 | U | 0.2 | U | 0.2 | U | 0.198 | U |
| N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NG | NG | NG | NG | 0.2 | U | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U | 0.199 | U | 0.198 | U | **0.126** | J+ | 0.2 | U | 0.198 | U |
| Perfluorobutanesulfonic acid (PFBS) | NG | NG | NG | NG | **0.0796** | J | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U | 0.199 | U | 0.198 | U | 0.2 | U | **0.0605** | J+ | 0.198 | U |
| Perfluorobutanoic acid (PFBA) | NG | NG | NG | NG | **0.143** | J | 0.8 | U | 0.795 | U | 0.797 | U | 0.797 | U | 0.796 | U | 0.792 | U | **0.129** | J | 0.798 | U | **0.172** | J |
| Perfluorodecanesulfonic acid (PFDS) | NG | NG | NG | NG | **0.15** | J | 0.2 | U | **0.0715** | J | 0.199 | U | 0.199 | U | 0.199 | U | 0.198 | U | **1.35** | | **0.285** | | 0.198 | U |
| Perfluorodecanoic acid (PFDA) | NG | NG | NG | NG | **0.462** | | **0.256** | | **0.092** | J | **0.185** | J | 0.199 | U | 0.199 | U | 0.198 | U | **1.84** | | **1.12** | | **0.422** | |
| Perfluorododecanoic acid (PFDoA) | NG | NG | NG | NG | **0.465** | | **0.0904** | J | **0.374** | | **0.343** | | 0.199 | U | 0.199 | U | 0.198 | U | **1.58** | | **0.177** | J | 0.198 | U |
| Perfluoroheptanesulfonic acid (PFHpS) | NG | NG | NG | NG | 0.2 | U | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U | 0.199 | U | 0.198 | U | 0.2 | U | 0.2 | U | 0.198 | U |
| Perfluoroheptanoic acid (PFHpA) | NG | NG | NG | NG | **0.112** | J | **0.0801** | J | 0.199 | U | 0.199 | U | 0.199 | U | 0.199 | U | 0.198 | U | **0.135** | J+ | 0.2 | U | **0.183** | J+ |
| Perfluorohexanesulfonic acid (PFHxS) | NG | NG | NG | NG | 0.2 | U | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U | 0.199 | U | 0.198 | U | 0.2 | U | 0.2 | U | 0.198 | U |
| Perfluorohexanoic acid (PFHxA) | NG | NG | NG | NG | **0.0892** | J+ | **0.221** | J | 0.199 | U | 0.199 | U | 0.199 | U | 0.199 | U | 0.198 | U | 0.2 | U | 0.2 | U | **0.395** | J |
| Perfluorononanoic acid (PFNA) | NG | NG | NG | NG | **0.191** | J+ | **0.168** | J+ | 0.199 | U | **0.0902** | J+ | **0.105** | J+ | **0.0819** | J+ | 0.198 | U | **0.484** | J+ | **0.248** | J+ | **0.653** | J+ |
| Perfluorooctanesulfonamide (PFOSA) | NG | NG | NG | NG | 0.2 | U | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U | 0.199 | U | 0.198 | U | **0.0758** | J | 0.2 | U | 0.198 | U |
| Perfluorooctanesulfonic acid (PFOS) | 0.88 | 1 | 8.8 | 44 | **2.24** | | **1.05** | | **0.657** | | **1.64** | | **1.06** | | **0.955** | | **0.326** | | **3.15** | | **1.31** | | **3.5** | |
| Perfluorooctanoic acid (PFOA) | 0.66 | 0.8 | 6.6 | 33 | **0.366** | J+ | **0.136** | J | 0.199 | U | 0.199 | U | **0.114** | J+ | **0.118** | J+ | **0.0644** | J+ | **0.489** | J+ | **0.156** | J+ | **0.473** | J+ |
| Perfluoropentanoic acid (PFPeA) | NG | NG | NG | NG | **0.166** | J | **0.26** | J | 0.398 | U | 0.399 | U | 0.399 | U | 0.398 | U | 0.396 | U | 0.4 | U | 0.399 | U | **0.34** | J+ |
| Perfluorotetradecanoic acid (PFTeDA) | NG | NG | NG | NG | **0.211** | | 0.2 | U | **0.163** | J | **0.0737** | J | 0.199 | U | 0.199 | U | 0.198 | U | **0.644** | | **0.0788** | J | 0.198 | U |
| Perfluorotridecanoic acid (PFTrDA) | NG | NG | NG | NG | **0.211** | | 0.2 | U | **0.168** | J | **0.146** | J | 0.199 | U | 0.199 | U | 0.198 | U | **0.625** | | **0.0655** | J | 0.198 | U |
| Perfluoroundecanoic acid (PFUnA) | NG | NG | NG | NG | **0.555** | | **0.125** | J | **0.324** | | **0.123** | J | 0.199 | U | 0.199 | U | 0.198 | U | **1.51** | | **0.251** | | 0.198 | U |

**Notes:**
PFAS = per- and polyfluoroalkyl substances
Only detected compounds shown
ft bgs = feet below ground surface
FS = field sample; FD  Field Duplicate
Bold result = analyte detected
NG = No Guidance
NA = Not Analyzed
U = analyzed but not detected
UJ = analyzed but not detected, estimated value
J = estimated value; J+ = estimated value, biased high
Unres = NYSDEC Guidance - SOIL Unrestricted Use
PG = NYSDEC Guidance - SOIL Protection of Groundwater
Res = NYSDEC Guidance - SOIL Residential Use
ResRes = NYSDEC Guidance - SOIL Restricted Residential Use
Yellow highlighted cells indicate an exceedance of Unrestriced Use
Blue highlighted cells indicate an exceedance of PG
Orange highlighted cells indicate an exceedance of Residential Use
Only parameters with detections shown



Created by: KLD 5/20/2024
Checked by: CRS 5/22/2024

## Table 4.3: Groundwater VOC Results

| | | | Location | GW-02-13 | | GW-02-14 | | GW-02-15 | | GW-02-16 | | DP-02 | | DP-04 | | DP-05 | | DP-05 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Date | 1/12/2022 | | 1/12/2022 | | 1/12/2022 | | 1/12/2022 | | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | | Field Sample ID | 360175-GW002-13 | | 360175-GW002-14 | | 360175-GW002-15 | | 360175-GW002-16 | | 360175-DP002011 | | 360175-DP004011 | | 360175-DP005011 | | 360175-DP005011D | |
| | | | Sample Depth (ft bgs) | 8 | | 8 | | 8 | | 8 | | 11 | | 11 | | 11 | | 11 | |
| | | | QC Code | FS | | FS | | FS | | FS | | FS | | FS | | FS | | FD | |
| **Parameter** | **GA** | **GV** | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **VOCs (ug/L)** | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trimethylbenzene | 5 | NS | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | **2.9** | | 1 | U | 1 | U |
| 1,3,5-Trimethylbenzene | 5 | NS | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | **0.53** | J | 1 | U | 1 | U |
| 2-Butanone | NS | 50 | | 20 | U | 20 | U | 20 | U | 20 | U | 20 | UJ | 20 | UJ | 20 | UJ | 20 | UJ |
| 4-iso-Propyltoluene | 5 | NS | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | **0.38** | J | 1 | U | 1 | U |
| Acetone | NS | 50 | | 50 | U | 50 | U | 50 | U | 50 | U | 50 | UJ | 50 | UJ | 50 | UJ | 50 | UJ |
| Chloroform | 7 | NS | | 2 | U | 2 | U | 2 | U | 2 | U | **0.53** | J | 2 | U | 2 | U | 2 | U |
| cis-1,2-Dichloroethene | 5 | NS | | 1 | U | **3.6** | | **4.8** | | **20** | | 1 | U | **1.3** | | **0.27** | J | 1 | U |
| Ethanol | NS | NS | | -- | | -- | | -- | | -- | | -- | | -- | | -- | | -- | |
| Isopropylbenzene | 5 | NS | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | **0.33** | J | 1 | U | 1 | U |
| Methylene chloride | 5 | NS | | 5 | U | **1.3** | J+ | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| n-Butylbenzene | 5 | NS | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | **0.68** | J | 1 | U | 1 | U |
| Naphthalene | NS | 10 | | 2 | UJ | 2 | UJ | 2 | UJ | 2 | UJ | 2 | UJ | **0.61** | J- | 2 | UJ | 2 | UJ |
| Propylbenzene | 5 | NS | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | **0.42** | J | 1 | U | 1 | U |
| sec-Butylbenzene | 5 | NS | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | **0.99** | J | 1 | U | 1 | U |
| t-Butyl alcohol | NS | NS | | NA | | NA | | NA | | NA | | 20 | UJ | **92** | J- | 20 | UJ | 20 | UJ |
| Tetrachloroethene | 5 | NS | | **3.6** | J+ | **220** | J | **120** | J+ | **2500** | J | **0.5** | J | 1 | U | **0.94** | J | **0.86** | J |
| Tetrahydrofuran | NS | 50 | | NA | | NA | | NA | | NA | | 10 | U | 10 | U | 10 | U | 10 | U |
| Toluene | 5 | NS | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| trans-1,2-Dichloroethene | 5 | NS | | 1 | U | 1 | U | **1** | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 5 | NS | | 1 | U | **4** | | **8.2** | | **28** | | 1 | U | **0.31** | J | **0.28** | J | **0.31** | J |

**Notes:**
Results reported in micrograms per liter (µg/L)
VOCs = Volatile Organic Compounds
Samples analyzed by EPA Method SW8260B
Only detected compounds shown
**Bold** = Compound detected in sample
NA = compound not analyzed
ft bgs = feet below ground surface
(basement water samples assumed to be 8 ft bgs)
QC Code: FS = Field Sample; FD = Field Duplicate
Qualifiers:
U = Not detected greater than the reporting limit
J = Estimated value ("+" = bias high, "-" = bias low)
GA = Class GA Groundwater Standard
GV = Groundwater Guidance Value
NS = No Standard/Guidance
**Highlighted results exceed GA Standard**
-- = not analyzed
DP-18 locatoin from PDI



Created by: KLD 5/20/2024
Checked by: CRS 7/22/2024

## Table 4.3: Groundwater VOC Results

| | | | Location | DP-08 | | DP-10 | | DP-11 | | DP-12 | | DP-15 | | DP-16 | | DP-17 | | MW-3D | | MW-3D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Date | 5/24/2022 | | 5/24/2022 | | 5/25/2022 | | 5/26/2022 | | 5/24/2022 | | 5/24/2022 | | 5/24/2022 | | 6/24/2022 | | 6/24/2022 | |
| | | | Field Sample ID | 360175-DP08011 | | 360175-DP01009 | | 360175-DP01108 | | 360175-DP01206 | | 360175-DP015010 | | 360175-DP016012 | | 360175-DP017012 | | 360175-MW0030020 | | Dup | |
| | | | Sample Depth (ft bgs) | 11 | | 9 | | 8 | | 6 | | 10 | | 12 | | 12 | | 20 | | 20 | |
| | | | QC Code | FS | | FS | | FS | | FS | | FS | | FS | | FS | | FS | | FD | |
| **Parameter** | **GA** | **GV** | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **VOCs (ug/L)** | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trimethylbenzene | 5 | NS | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,3,5-Trimethylbenzene | 5 | NS | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 2-Butanone | NS | 50 | | 20 | UJ | **2.3** | J- | 20 | UJ | 20 | UJ | 20 | UJ | 20 | UJ | 20 | UJ | 20 | UJ | 20 | UJ |
| 4-iso-Propyltoluene | 5 | NS | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Acetone | NS | 50 | | **3.2** | J | **12** | J | **2.8** | J | **3.2** | J | **8.3** | J | **7.2** | J | **8.1** | J | 50 | UJ | 50 | UJ |
| Chloroform | 7 | NS | | 2 | U | 2 | U | 2 | U | 2 | U | 2 | U | 2 | U | 2 | U | 2 | U | **0.22** | J |
| cis-1,2-Dichloroethene | 5 | NS | | **7.1** | | **0.23** | J | **0.2** | J | 1 | U | 1 | U | **0.89** | J | 1 | U | 1 | U | 1 | U |
| Ethanol | NS | NS | | -- | | -- | | -- | | -- | | -- | | -- | | -- | | -- | | -- | |
| Isopropylbenzene | 5 | NS | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Methylene chloride | 5 | NS | | 5 | UJ | 5 | UJ | 5 | UJ | 5 | UJ | 5 | UJ | 5 | UJ | 5 | UJ | 5 | U | 5 | U |
| n-Butylbenzene | 5 | NS | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Naphthalene | NS | 10 | | 2 | UJ | 2 | UJ | 2 | UJ | 2 | UJ | 2 | UJ | 2 | UJ | 2 | UJ | 2 | UJ | 2 | UJ |
| Propylbenzene | 5 | NS | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| sec-Butylbenzene | 5 | NS | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| t-Butyl alcohol | NS | NS | | 20 | UJ | 20 | UJ | 20 | UJ | 20 | UJ | 20 | UJ | 20 | UJ | 20 | UJ | 20 | UJ | 20 | UJ |
| Tetrachloroethene | 5 | NS | | **7.5** | | **7.3** | | **0.59** | J | 1 | U | 1 | U | **4.7** | | **1.2** | | 1 | U | 1 | U |
| Tetrahydrofuran | NS | 50 | | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | **1.8** | J | 10 | U | 10 | U |
| Toluene | 5 | NS | | 1 | U | **0.3** | J | 1 | U | 1 | U | 1 | U | 1 | U | **0.29** | J | 1 | U | 1 | U |
| trans-1,2-Dichloroethene | 5 | NS | | **0.7** | J | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 5 | NS | | **6.2** | | **0.25** | J | **0.21** | J | 1 | U | 1 | U | **1.1** | | 1 | U | 1 | U | 1 | U |

**Notes:**
Results reported in micrograms per liter (µg/L)
VOCs = Volatile Organic Compounds
Samples analyzed by EPA Method SW8260B
Only detected compounds shown
**Bold** = Compound detected in sample
NA = compound not analyzed
ft bgs = feet below ground surface
(basement water samples assumed to be 8 ft bgs)
QC Code: FS = Field Sample; FD = Field Duplicate
Qualifiers:
U = Not detected greater than the reporting limit
J = Estimated value ("+" = bias high, "-" = bias lov
GA = Class GA Groundwater Standard
GV = Groundwater Guidance Value
NS = No Standard/Guidance
**Highlighted results exceed GA Standard**
-- = not analyzed
DP-18 locatoin from PDI

**Table 4.3: Groundwater VOC Results**

| | | | Location | DW-01 | | DW-02 | | DW-05 | | DW-06 | | DP-18 | | DP-18 | | DP-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Date | 3/22/2022 | | 3/22/2022 | | 12/20/2022 | | 3/21/2023 | | 8/20/2024 | | 8/20/2024 | | 8/20/2024 | |
| | | | Field Sample ID | 360175-DW001-1 | | 360175-DW002-2 | | 360175-005N SUMP | | 360175-006 SUMP | | GW | | 360175-DP018001D-GW | | 360175-DP018008 | |
| | | | Sample Depth (ft bgs) | 8 | | 8 | | 8 | | 8 | | 8 | | 8 | | 15 | |
| | | | QC Code | FS | | FS | | FS | | FS | | FS | | FD | | FS | |
| **Parameter** | **GA** | **GV** | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **VOCs (ug/L)** | | | | | | | | | | | | | | | | | |
| 1,2,4-Trimethylbenzene | 5 | NS | | 2 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,3,5-Trimethylbenzene | 5 | NS | | 2 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 2-Butanone | NS | 50 | | 40 | UJ | 20 | UJ | 20 | U | 20 | U | 2 | U | 2 | UJ | **1.88** | J |
| 4-iso-Propyltoluene | 5 | NS | | 2 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Acetone | NS | 50 | | 100 | UJ | 50 | UJ | 50 | U | 50 | U | 10 | U | 10 | UJ | **14.9** | |
| Chloroform | 7 | NS | | 4 | U | 2 | U | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| cis-1,2-Dichloroethene | 5 | NS | | 2 | U | 2 | U | 1 | U | 1 | U | **22.9** | | **11.6** | | **5.78** | |
| Ethanol | NS | NS | | -- | | -- | | -- | | -- | | 200 | U | 200 | UJ | **14** | J |
| Isopropylbenzene | 5 | NS | | 2 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Methylene chloride | 5 | NS | | 10 | U | 5 | U | 5 | U | 5 | U | 2 | U | 2 | U | 2 | U |
| n-Butylbenzene | 5 | NS | | 2 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Naphthalene | NS | 10 | | 4 | UJ | 2 | UJ | 2 | UJ | 2 | UJ | 2 | U | 2 | UJ | **0.874** | J |
| Propylbenzene | 5 | NS | | 2 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| sec-Butylbenzene | 5 | NS | | 2 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| t-Butyl alcohol | NS | NS | | 40 | UJ | 20 | UJ | 20 | U | 20 | U | 10 | U | 10 | UJ | 10 | U |
| Tetrachloroethene | 5 | NS | | **150** | | **2** | | 1 | U | 1 | U | **2590** | | **2880** | | **227** | |
| Tetrahydrofuran | NS | 50 | | 20 | U | 10 | U | 10 | U | 10 | U | 2 | U | 2 | UJ | 2 | U |
| Toluene | 5 | NS | | 2 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| trans-1,2-Dichloroethene | 5 | NS | | 2 | U | 1 | U | 1 | U | 1 | U | **0.265** | J | 1 | U | 1 | U |
| Trichloroethene | 5 | NS | | **0.66** | J | **5.2** | | 1 | U | 1 | U | **59.6** | | **31** | | **10.9** | |

**Notes:**
Results reported in micrograms per liter (µg/L)
VOCs = Volatile Organic Compounds
Samples analyzed by EPA Method SW8260B
Only detected compounds shown
**Bold** = Compound detected in sample
NA = compound not analyzed
ft bgs = feet below ground surface
(basement water samples assumed to be 8 ft bgs)
QC Code: FS = Field Sample; FD = Field Duplicate
Qualifiers:
U = Not detected greater than the reporting limit
J = Estimated value ("+" = bias high, "-" = bias lov
GA = Class GA Groundwater Standard
GV = Groundwater Guidance Value
NS = No Standard/Guidance
**Highlighted results exceed GA Standard**
-- = not analyzed
DP-18 locatoin from PDI

**Table 4.4: Groundwater PFAS Results**

| | | | Location | MW-03D | MW-03D | DP-02 | DP-04 | DP-04 | DP-05 | DP-05 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Date | 6/14/2022 | 3/8/2024 | 6/14/2022 | 6/14/2022 | 3/8/2024 | 6/14/2022 | 6/14/2022 |
| | | | Field Sample ID | 360175-MW003D020 | 360175-MW003D027 | 360175-DP002011 | 360175-DP004011 | 360175-DP004012 | 360175-DP005011 | DUP |
| | | | Sample Depth (ft bgs) | 20 | 27 | 11 | 11 | 12 | 11 | 11 |
| | | | QC Code | FS | FS | FS | FS | FS | FS | FD |
| **Parameter** | **MCL** | **Guideline** | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier |
| **PFAS (ng/L)** | | | | | | | | | |
| 6:2 Fluorotelomer sulfonic acid (6:2FTS) | NS | NS | 1.7 UJ | 7.78 U | 1.8 UJ | 2 U | 8.53 U | 1.7 U | **0.34** J |
| N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NS | NS | 1.7 U | 1.95 U | 1.8 U | **0.97** J+ | **3.2** | 1.7 UJ | 1.8 U |
| N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NS | NS | 1.7 U | 3.89 U | 1.8 U | 2 UJ | **1.76** J | 1.7 UJ | 1.8 U |
| Perfluoro-1-butanesulfonamide (FBSA) | NS | NS | 1.7 U | NA | **0.29** J | **4** | NA | **0.28** J | **0.27** J |
| Perfluoro-3-methoxypropanoic acid (PFMPA) | NS | NS | 1.7 U | 3.89 U | 1.8 U | 2 U | 4.27 U | 1.7 U | 1.8 U |
| Perfluorobutanesulfonic acid (PFBS) | NS | NS | **7.7** | **6.97** | **8.9** | **14** | **20.9** J+ | **8.4** | **7.9** |
| Perfluorobutanoic acid (PFBA) | NS | NS | **9.9** | **9.49** | **8.8** | **14** J | **23.3** | **9.1** J+ | **8** J+ |
| Perfluorodecanoic acid (PFDA) | NS | NS | 1.7 U | 1.95 U | 1.8 U | **7.9** | **15.5** | 1.7 U | 1.8 U |
| Perfluorododecanoic acid (PFDoA) | NS | NS | 1.7 U | 1.95 U | 1.8 U | R | 2.13 U | R | 1.8 UJ |
| Perfluoroheptanesulfonic acid (PFHpS) | NS | NS | 1.7 U | 1.95 U | 1.8 U | **3.1** | **2.53** | 1.7 U | **1** J |
| Perfluoroheptanoic acid (PFHpA) | NS | NS | **4.9** | **6.29** | **4.2** | **17** | **47.3** | **4.6** | **4.7** |
| Perfluorohexanesulfonic acid (PFHxS) | NS | NS | **2.5** | **2.54** | **2.7** | **9.6** | **15.1** | **2.6** | **2.6** |
| Perfluorohexanoic acid (PFHxA) | NS | NS | **9.9** | **14.6** | **7.5** | **22** | **48.3** | **6.9** | **7.4** |
| Perfluorononanoic acid (PFNA) | NS | NS | 1.7 U | 1.95 U | **77** | **23** | **22.7** | **3.6** | **3.8** |
| Perfluorooctanesulfonamide (PFOSA) | NS | NS | 1.7 U | 1.95 U | 1.8 U | **2.2** J | **3.62** | R | 1.8 UJ |
| Perfluorooctanesulfonic acid (PFOS) | 10 | 2.7 | **2** | **2.3** J | **12** | **230** | **331** | **29** J+ | **34** J+ |
| Perfluorooctanoic acid (PFOA) | 10 | 6.7 | **17** | **21.9** | **17** | **42** | **66.7** | **16** J+ | **17** J+ |
| Perfluoropentanesulfonic acid (PFPeS) | NS | NS | **0.34** J | 1.95 U | **0.32** J | **1.2** J | **33.7** J- | **0.37** J | **0.36** J |
| Perfluoropentanoic acid (PFPeA) | NS | NS | **11** | **15.6** | **8.7** | **32** | **61.5** | **7.7** J+ | **8.3** J+ |
| Perfluoroundecanoic acid (PFUnA) | NS | NS | 1.7 U | 1.95 U | 1.8 U | 2 UJ | 2.13 U | 1.7 UJ | 1.8 U |

**Notes:**

Results reported in nanograms per liter (ng/L)

Samples analyzed by EPA Methods 537.1 and 1633

Only detected compounds shown

**Bold** = Compound detected in sample

QC Code: FS = Field Sample; FD = Field Duplicate

Qualifiers:

U = Not detected greater than the reporting limit

UJ = Not detected greater than the reporting limit, estimated value

J = Estimated value

J+ = Estimated value, biased high

J- = Estimated value, biased low

R = Result rejected during validation

MCL = Drinking Water Standard

Guideline = NYS PFAS Guidelines

NS = No Standard

**Gray shaded results exceed MCL**

**Table 4.4: Groundwater PFAS Results**

| | | | Location | DP-08 | | DP-09 | | DP-10 | | DP-15 | | DW-06 | | DW-06 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Date | 3/23/2022 | | 3/23/2022 | | 3/23/2022 | | 3/23/2022 | | 3/8/2024 | | 3/8/2024 | |
| | | | Field Sample ID | 360175-DP008011 | | 360175-DP00909 | | 360175-DP01009 | | 360175-DP01508 | | 360175-DW006 | | 360175-DW006D | |
| | | | Sample Depth (ft bgs) | 11 | | 9 | | 9 | | 8 | | 9 | | 9 | |
| | | | QC Code | FS | | FS | | FS | | FS | | FS | | FD | |
| **Parameter** | **MCL** | **Guideline** | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **PFAS (ng/L)** | | | | | | | | | | | | | | | |
| 6:2 Fluorotelomer sulfonic acid (6:2FTS) | NS | NS | | **0.39** | J | **1.2** | J | 2.1 | UJ | 2 | U | 7.84 | U | 8.24 | U |
| N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NS | NS | | 1.8 | UJ | 1.8 | U | 2.1 | U | 2 | UJ | 1.96 | U | 2.06 | U |
| N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NS | NS | | 1.8 | UJ | 1.8 | U | 2.1 | U | 2 | UJ | 3.92 | U | 4.12 | U |
| Perfluoro-1-butanesulfonamide (FBSA) | NS | NS | | **8.3** | | **3.6** | | **1.2** | J | **0.74** | J | NA | | NA | |
| Perfluoro-3-methoxypropanoic acid (PFMPA) | NS | NS | | 1.8 | U | **1** | J | 2.1 | U | 2 | U | 3.92 | U | 4.12 | U |
| Perfluorobutanesulfonic acid (PFBS) | NS | NS | | **24** | | **7.6** | | **10** | | **5.8** | | **7.36** | | **7.41** | |
| Perfluorobutanoic acid (PFBA) | NS | NS | | **9.8** | | **20** | J | **14** | | **11** | J | **5.94** | J | **6.5** | J |
| Perfluorodecanoic acid (PFDA) | NS | NS | | 1.8 | U | **5** | | **6.4** | | **13** | | 1.96 | U | 2.06 | U |
| Perfluorododecanoic acid (PFDoA) | NS | NS | | 1.8 | UJ | 1.8 | U | **0.58** | J | 2 | UJ | 1.96 | U | 2.06 | U |
| Perfluoroheptanesulfonic acid (PFHpS) | NS | NS | | **1.2** | J | **3.2** | | 2.1 | U | 2 | U | 1.96 | U | 2.06 | U |
| Perfluoroheptanoic acid (PFHpA) | NS | NS | | **12** | | **17** | | **11** | | **6.9** | | **2.64** | | **2.6** | |
| Perfluorohexanesulfonic acid (PFHxS) | NS | NS | | **10** | | **3.8** | | **3.3** | | **3.2** | | **1.95** | J | **1.93** | J |
| Perfluorohexanoic acid (PFHxA) | NS | NS | | **18** | | **38** | | **28** | | **19** | | **3.66** | | **3.49** | |
| Perfluorononanoic acid (PFNA) | NS | NS | | **9.2** | | **48** | | **9.2** | | **4.6** | | **0.854** | J | **0.766** | J |
| Perfluorooctanesulfonamide (PFOSA) | NS | NS | | 1.8 | U | 1.8 | UJ | 2.1 | U | 2 | UJ | 1.96 | U | 2.06 | U |
| Perfluorooctanesulfonic acid (PFOS) | 10 | 2.7 | | **23** | | **160** | | **30** | | **31** | | **11.3** | | **11.2** | |
| Perfluorooctanoic acid (PFOA) | 10 | 6.7 | | **56** | | **95** | | **46** | | **20** | | **13.6** | | **13.9** | |
| Perfluoropentanesulfonic acid (PFPeS) | NS | NS | | **1** | J | 1.8 | U | **0.44** | J | 2 | U | **0.513** | J | 2.06 | U |
| Perfluoropentanoic acid (PFPeA) | NS | NS | | **19** | | **51** | | **31** | | **35** | | **2.96** | J | **3.62** | J |
| Perfluoroundecanoic acid (PFUnA) | NS | NS | | 1.8 | U | 1.8 | U | **0.73** | J | **0.45** | J | 1.96 | U | 2.06 | U |

**Notes:**

Results reported in nanograms per liter (ng/L)

Samples analyzed by EPA Methods 537.1 and 1633

Only detected compounds shown

**Bold** = Compound detected in sample

QC Code: FS = Field Sample; FD = Field Duplicate

Qualifiers:

U = Not detected greater than the reporting limit

UJ = Not detected greater than the reporting limit, estimated value

J = Estimated value

J+ = Estimated value, biased high

J- = Estimated value, biased low

R = Result rejected during validation

MCL = Drinking Water Standard

Guideline = NYS PFAS Guidelines

NS = No Standard

**Gray shaded results exceed MCL**

**Table 4.5: Groundwater SVOC, Metals, Pesticides, and PCB Results**

| | | Location | DP-02 | | DP-04 | | DP-05 | | DP-05 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Date | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | Field Sample ID | 360175-DP002011 | | 360175-DP004011 | | 360175-DP005011 | | 360175-DP005011D | |
| | | QC Code | FS | | FS | | FS | | FD | |
| **Parameter** | **GA** | **GV** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **SVOCs (ug/L) - Method 8270** | | | | | | | | | | |
| 1-Methylnaphthalene | NS | NS | 4.8 | U | **3.9** | J | 4.9 | U | 5 | U |
| 2-Methylnaphthalene | NS | NS | 4.8 | U | **1.4** | J | 4.9 | U | 5 | U |
| Dibenzofuran | NS | NS | 4.8 | U | **0.63** | J | 4.9 | U | 5 | U |
| Fluorene | NS | 50 | 4.8 | U | **0.87** | J | 4.9 | U | 5 | U |
| Naphthalene | NS | 10 | 4.8 | U | **0.62** | J | 4.9 | U | 5 | U |
| Phenanthrene | NS | 50 | 4.8 | U | **1.1** | J | 4.9 | U | 5 | U |
| **Metals (mg/L) - Method 6010** | | | | | | | | | | |
| Aluminum | NS | NS | **0.073** | | **0.074** | | **0.015** | J | **0.021** | J |
| Arsenic | 0.025 | NS | 0.01 | U | **0.018** | | 0.01 | U | 0.01 | U |
| Barium | 1 | NS | **0.039** | J | **0.052** | | **0.041** | J | **0.042** | J |
| Calcium | NS | NS | **67** | | **120** | | **74** | | **74** | |
| Cobalt | NS | NS | **0.0016** | J | **0.0052** | J | 0.01 | U | 0.01 | U |
| Iron | 0.3 | NS | **0.15** | | **6.4** | | **0.045** | J | **0.044** | J |
| Magnesium | NS | 35 | **23** | | **23** | | **26** | | **26** | |
| Manganese | 0.3 | NS | **0.053** | | **1.5** | | **0.019** | | **0.019** | |
| Potassium | NS | NS | **4.8** | | **5.3** | | **4.7** | | **4.8** | |
| Sodium | 20 | NS | **39** | | **22** | | **26** | | **26** | |
| Vanadium | NS | NS | **0.0076** | J | **0.0082** | J | **0.0067** | J | **0.0073** | J |
| Zinc | NS | 2 | **0.0051** | J | **0.005** | J | **0.0054** | J | **0.0047** | J |
| **Pesticides - Method 8081: All Non Detect** | | | | | | | | | | |
| **PCBs - Method 8082: All Non-Detect** | | | | | | | | | | |

**Notes:**
Results reported in micrograms per liter (µg/L) or milograms per liter (mg/L)
Only detected compounds shown
**Bold** = Compound detected in sample
QC Code: FS = Field Sample; FD = Field Duplicate
Qualifiers:
U = Not detected greater than the reporting limit
J = Estimated value
GA = Class GA Groundwater Standard
GV = Groundwater Guidance Value
NS = No Standard/Gudance
**Highlighted results exceed GA Standard**

**Table 4.6: Exterior Soil Vapor Results**

| **Location** | GV-08 | | GV-09 | | GV-09 | | GV-10 | | GV-11 | | GV-12 | | GV-14 | | GV-15 | | GV-16 | | GV-17 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample Date** | 3/23/2022 | | 3/23/2022 | | 3/23/2022 | | 3/24/2022 | | 3/24/2022 | | 3/24/2022 | | 3/25/2022 | | 3/24/2022 | | 3/23/2022 | | 3/24/2022 | |
| **Field Sample ID** | 360175-GV008005 | | 360175-GV009005 | | 360175-GV009005D | | 360175-GV010005 | | 360175-GV011005 | | 360175-GV012005 | | 360175-GV014005 | | 360175-GV015005 | | 360175-GV016005 | | 360175-GV017005 | |
| **QC Code** | FS | | FS | | FD | | FS | | FS | | FS | | FS | | FS | | FS | | FS | |
| **Parameter** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **VOCs (ug/m3)** | | | | | | | | | | | | | | | | | | | | |
| 1,3,5-Trimethylbenzene | 0.98 | U | 0.98 | U | 0.98 | U | 0.98 | U | 0.98 | U | 0.98 | U | 0.98 | U | 0.98 | U | 0.98 | U | **0.59** | J |
| 1,3-Dichlorobenzene | **3** | | **1.8** | | **2.3** | | 1.2 | U | 1.2 | U | 1.2 | U | 1.2 | U | **0.84** | J | 1.2 | U | 1.2 | U |
| 2-Propanol | **5.4** | J | **4.8** | J | **5.1** | J | **3.7** | J | **4.4** | J | **5.1** | J | **34** | | **23** | | **210** | | **32** | |
| Acetone | **57** | | **32** | | **31** | | **73** | | **210** | | **150** | | **160** | | **80** | | **120** | | **25** | |
| Benzene | 0.64 | U | 0.64 | U | 0.64 | U | 0.64 | U | 0.64 | U | 0.64 | U | **0.74** | | **80** | J | **1.3** | | **2.5** | |
| Chloroform | **2.4** | | 0.98 | U | 0.98 | U | 0.98 | U | **1.2** | | **1.2** | | 0.98 | U | 80 | U | 0.98 | U | **0.98** | |
| Chloromethane | 0.83 | U | **0.33** | J | 0.83 | U | 0.83 | U | 0.83 | U | 0.83 | U | 0.83 | U | 80 | U | **1.5** | | 0.83 | U |
| cis-1,2-Dichloroethene | **86** | | 0.79 | U | 0.79 | U | 0.79 | U | 0.79 | U | 0.79 | U | 0.79 | U | 80 | U | 0.79 | U | 0.79 | U |
| Cyclohexane | 0.69 | U | 0.69 | U | 0.69 | U | 0.69 | U | 0.69 | U | 0.69 | U | 0.69 | U | 80 | U | **7.5** | | **5.6** | |
| Dichlorodifluoromethane | **1.9** | | **2.3** | | **2.1** | | **2.1** | | **1.9** | | **2** | | **2** | | **80** | | **1.2** | | **2.1** | |
| Ethanol | **98** | | **100** | | **100** | | **160** | | **67** | | **180** | | **100** | | **80** | | **790** | | **200** | |
| Ethylbenzene | **0.64** | J | 0.87 | U | 0.87 | U | 0.87 | U | 0.87 | U | 0.87 | U | 0.87 | U | **80** | J | 0.87 | U | **5** | |
| Heptane | **1.6** | | 0.82 | U | 0.82 | U | **0.66** | J | **0.75** | J | **0.84** | | **0.66** | J | **80** | | **2.9** | | **7.2** | |
| Hexane | 28 | U | 28 | U | 28 | U | 28 | U | 28 | U | 28 | U | 28 | U | **80** | J | **310** | | **8.8** | J |
| Tetrachloroethene | **1100** | | **4.6** | | **5** | | **7.9** | | **4.1** | | **7.1** | | **11** | | **80** | | **3** | | **5.3** | |
| Toluene | **4.5** | | **1.9** | | **1.9** | | **1.7** | | **2.1** | | **1.7** | | **1.6** | | **80** | | **5.2** | | **42** | |
| trans-1,2-Dichloroethene | **8.7** | | 0.79 | U | 0.79 | U | 0.79 | U | 0.79 | U | 0.79 | U | 0.79 | U | 80 | U | 0.79 | U | 0.79 | U |
| Trichloroethene | **110** | | 1.1 | U | 1.1 | U | 1.1 | U | 1.1 | U | 1.1 | U | 1.1 | U | 80 | U | 1.1 | U | 1.1 | U |
| Trichlorofluoromethane | **1.3** | J | **1.4** | J | **1.4** | J | 4.5 | U | 4.5 | U | 4.5 | U | **1.4** | J | **80** | J | **1.4** | J | **1.5** | J |
| Vinyl chloride | **0.85** | | 0.51 | U | 0.51 | U | 0.51 | U | 0.51 | U | 0.51 | U | 0.51 | U | 80 | U | 0.51 | U | 0.51 | U |
| Xylene, o | **0.8** | J | **0.49** | J | **0.45** | J | 0.87 | U | 0.87 | U | 0.87 | U | 0.87 | U | **80** | | **0.82** | J | **5.1** | |
| Xylenes (m&p) | **2** | | **1.3** | J | **1.4** | J | 1.7 | U | 1.7 | U | 1.7 | U | 1.7 | U | **80** | | **2.4** | | **21** | |

**Notes:**
Results in micrograms per cubic liter (ug/m3)
Samples analyzed by USEPA Method TO-15
Only detected compounds shown.
**Bold** = Compound detected in sample
Qualifiers:
U = Not detected greater than the reporting limit
J = Estimated value
QC Code: FS = Field Sample; FD = Field Duplicate

**Table 4.7: SVI Results**

| **Address** | **49 Main Street (Building 002)** | | | | | | | **11 N. Dutcher Street (Building 004)** | | **47 Main Street (South and North) (Building 005)** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location** | Bldg 2 Basement East | Bldg 2 Basement East | Bldg 2 Basement West | Bldg 2 Basement West | Bldg 2 Basement West | Bldg 2 Basement West | Bldg 2 Third Floor | IA-04CS | IA-04F1 | SV-05N | SV-05S | IA-05BN | IA-05BS |
| **Field Sample Date** | 12/21/2022 | 3/21/2023 | 12/21/2022 | 12/21/2022 | 3/21/2023 | 3/21/2023 | 12/21/2022 | 12/21/2022 | 12/21/2022 | 12/21/2022 | 12/21/2022 | 12/21/2022 | 12/21/2022 |
| **Field Sample ID** | 360175-IA002E | 360175-IA002E | 360175-IA002W | 360175-IA002W D | 360175-IA002W | 360175-IA002WD | 360175-IA0023F | 360175-IA004CS | 360175-IA004F1 | 360175-SV005N | 360175-SV005S | 360175-IA005BN | 360175-IA005BS |
| **QC Code** | FS | FS | FS | FD | FS | FD | FS | FS | FS | FS | FS | FS | FS |
| **Parameter** | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier | Result Qualifier |
| **VOCs (µg/m3)** | | | | | | | | | | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | **0.57** J | **0.41** J | **0.5** J | **0.47** J | **0.41** J | 1.5 U | **0.49** J | **0.49** J | **0.51** J | 3.1 U | 3.1 U | **0.51** J | **0.52** J |
| 1,2,4-Trimethylbenzene | **0.17** | 0.98 U | **0.14** J | **0.14** J | 0.98 U | 0.98 U | **0.22** | **0.2** | **0.2** | **0.28** J | 0.49 U | **0.82** | **0.68** |
| 1,2-Dichloroethane | 0.14 U | 0.81 U | 0.14 U | 0.14 U | 0.81 U | 0.81 U | 0.14 U | 0.14 U | 0.14 U | 0.4 U | 0.4 U | 0.14 U | 0.14 U |
| 1,3,5-Trimethylbenzene | 0.17 U | 0.98 U | 0.17 U | 0.17 U | 0.98 U | 0.98 U | 0.17 U | 0.17 U | 0.17 U | 0.49 U | 0.49 U | **0.29** | **0.22** |
| 1,3-Butadiene | 0.077 U | **0.12** J | 0.077 U | 0.077 U | 0.44 U | 0.44 U | 0.077 U | 0.077 U | 0.077 U | 0.22 U | 0.22 U | 0.077 U | 0.077 U |
| 1,4-Dichlorobenzene | 0.21 U | 1.2 U | 0.21 U | 0.21 U | 1.2 U | 1.2 U | 0.21 U | 0.21 U | 0.21 U | **1.1** | **1.2** | 0.21 U | 0.21 U |
| 2-Butanone | **2.9** J | 1.5 U | 4.1 U | 4.1 U | **24** J | 1.5 UJ | **1.5** J | 4.1 U | **2.4** J | 12 U | 12 U | **1.1** J | **2.1** J |
| 2-Hexanone | **0.53** | 2 U | 0.29 U | 0.29 U | 2 U | 2 U | **0.29** | 0.29 U | **0.54** | 0.82 U | **0.57** J | 0.29 U | **0.27** J |
| 2-Propanol | **3.2** J | 12 U | **2.9** J | **3** J | **7.2** J | 12 U | **3** J | **1.2** J | **6.9** | 9.8 U | 9.8 U | **1.6** J | **3** J |
| 4-Ethyltoluene | 0.17 U | 0.98 U | 0.17 U | 0.17 U | 0.98 U | 0.98 U | 0.17 U | 0.17 U | 0.17 U | 0.49 U | 0.49 U | **0.21** | **0.16** J |
| 4-iso-Propyltoluene | NA | 1.1 U | NA | NA | **1.5** J | 1.1 UJ | NA | NA | NA | NA | NA | NA | NA |
| 4-Methyl-2-pentanone | **0.13** J | 2 U | 0.14 U | 0.14 U | 2 U | 2 U | 0.14 U | 0.14 U | 0.14 U | 0.41 U | 0.41 U | **0.083** J | **0.13** J |
| Acetone | **32** | **11** J | **7.6** J | **15** J | **80** J | **12** J | **10** | **4.6** | **16** | **54** | **23** | **18** | **20** |
| Benzene | **1.1** | **0.65** | **0.92** | **0.94** | **0.59** J | **0.58** J | **1.1** | **1** | **1.7** | **5.7** | **0.33** J | **0.78** | **0.82** |
| Bromodichloromethane | 0.23 U | 1.3 U | 0.23 U | 0.23 U | 1.3 U | 1.3 U | 0.23 U | 0.23 U | 0.23 U | **0.64** J | **1.2** | 0.23 U | 0.23 U |
| Butane | NA | **2.9** | NA | NA | **2.9** | **2.9** | NA | NA | NA | NA | NA | NA | NA |
| Carbon disulfide | 1.1 U | 1.6 U | 1.1 U | 1.1 U | **0.43** J | **0.57** J | 1.1 U | 1.1 U | 1.1 U | **56** | 3.1 U | 1.1 U | 1.1 U |
| Carbon tetrachloride | **0.42** | **0.25** | **0.41** | **0.43** | **0.27** | **0.27** | **0.43** | **0.43** | **0.41** | 0.63 U | 0.63 U | **0.38** | **0.42** |
| Chlorodifluoromethane | NA | **2** | NA | NA | **1.8** | **1.4** J | NA | NA | NA | NA | NA | NA | NA |
| Chloroethane | 0.092 U | 1.3 U | 0.092 U | 0.092 U | 1.3 U | 1.3 U | 0.092 U | 0.092 U | 0.092 U | **0.31** | 0.26 U | **0.085** J | 0.092 U |
| Chloroform | 0.17 U | 0.98 U | **0.18** J | **0.3** J | 0.98 U | 0.98 U | **0.52** | **0.19** | **2.6** | **3.6** | **29** | 0.17 U | **0.26** |
| Chloromethane | **0.91** | **1.1** | **0.94** | **0.93** | **1.3** | **1.1** | **0.99** | **0.87** | **2.3** | **0.4** J | **0.52** | **1** | **0.93** |
| cis-1,2-Dichloroethene | **4.2** | 0.2 U | 0.14 UJ | **6.1** J | 0.2 U | 0.2 U | 0.14 U | 0.14 U | 0.14 U | **3.8** | **26** | 0.14 U | 0.14 U |
| Cyclohexane | **0.082** J | 0.69 U | 0.12 U | **0.074** J | 0.69 U | 0.69 U | **0.074** J | **0.098** J | **0.1** J | **1.4** | 0.34 U | 0.12 U | 0.12 U |
| Dichlorodifluoromethane | **2.6** | **1.9** J | **2.4** | **2.5** | **1.9** J | **1.9** J | **2.6** | **2.6** | **2.4** | **2.9** | **2.4** | **2.5** | **2.4** |
| Ethanol | **18** | NA | **18** | **17** | NA | NA | **35** | **15** | **56** | **8.9** | **8.7** | **7** | **92** |
| Ethyl acetate | **3.3** | NA | **3.6** | **3.9** | NA | NA | **1.6** | 1.3 U | **0.94** J | **2.5** J | 3.6 U | **14** | **9.6** |
| Ethylbenzene | **0.18** | **0.33** J | **0.2** | **0.19** | **0.34** J | **0.35** J | **0.18** | **0.17** | **0.3** | **0.32** J | 0.43 U | **0.17** | **0.22** |
| Heptane | **0.26** | **0.27** J | **0.17** | **0.15** | **0.34** J | **0.25** J | **0.27** | **0.22** | **0.23** | **1.3** | **0.37** J | **0.26** | **0.18** |
| Hexachlorobutadiene | 0.37 UJ | 2.1 U | 0.37 UJ | 0.37 UJ | 2.1 U | 2.1 U | 0.37 UJ | 0.37 UJ | 0.37 UJ | 1.1 UJ | 1.1 UJ | 0.37 UJ | 0.37 UJ |
| Hexane | **0.75** J | **1.9** | **0.68** J | **0.73** J | **0.61** J | **0.48** J | **0.66** J | **0.82** J | **0.68** J | **1.9** J | 14 U | **0.94** J | **0.65** J |
| Isooctane | NA | **0.25** J | NA | NA | **0.26** J | **0.25** J | NA | NA | NA | NA | NA | NA | NA |
| Methylene chloride | 1.2 U | **1.2** J | **0.59** J | 1.2 U | **0.82** J | **0.63** J | **0.57** J | **27** | **10** | 3.5 U | 3.5 U | **0.89** J | 1.2 U |
| Naphthalene | 0.18 U | 2.6 U | **0.14** J | 0.18 U | 2.6 U | 2.6 U | **0.14** J | 0.18 U | 0.18 U | **0.42** J | **0.61** | 0.18 U | 0.18 U |
| Propylene | 2.4 U | NA | 2.4 U | 2.4 U | NA | NA | 2.4 U | 2.4 U | 2.4 U | 6.9 U | **4.1** J | 2.4 U | 2.4 U |
| sec-Butylbenzene | NA | 1.1 U | NA | NA | 1.1 U | 1.1 U | NA | NA | NA | NA | NA | NA | NA |
| Styrene | **0.25** | **0.26** J | **0.26** | **0.26** | 0.85 U | 0.85 U | **0.29** | 0.15 U | **0.13** J | 0.43 U | 0.43 U | **0.1** J | 0.15 U |
| Tetrachloroethene | **0.62** | **0.38** J | **0.35** J | **2.4** J | **0.2** J | **0.21** J | **0.21** J | 0.24 U | **2.6** | **460** | **370** | 0.24 U | **0.79** |
| Tetrahydrofuran | **0.5** J | 15 U | 1 U | **0.58** J | 15 U | 15 U | 1 U | 1 U | 1 U | 2.9 U | 2.9 U | 1 U | **0.34** J |
| Toluene | **0.79** | **1.5** | **0.63** | **0.58** | **1.3** | **0.99** | **0.82** | **0.81** | **1.6** | **2** | **0.68** | **7.4** | **4.3** |
| trans-1,2-Dichloroethene | **0.17** | **0.1** J | 0.14 U | 0.14 U | 0.79 U | 0.79 U | 0.14 U | 0.14 U | 0.14 U | 0.4 U | **0.73** | 0.14 U | 0.14 U |
| Trichloroethene | **0.3** | 0.2 U | 0.19 UJ | **6.2** J | 0.2 U | 0.2 U | 0.19 U | 0.19 U | 0.19 U | **58** | **97** | 0.19 U | 0.19 U |
| Trichlorofluoromethane | **1.3** | **0.94** J | **1.2** | **1.3** | **0.93** J | **0.94** J | **1.2** | **1.3** | **1.3** | **1.4** J | **1.5** J | **1.3** | **1.2** |
| Vinyl acetate | **2.1** J | NA | 2.5 U | 2.5 U | NA | NA | 2.5 U | **1.2** J | **1.9** J | **3** J | **3.7** J | 2.5 U | 2.5 U |
| Xylene, o | **0.27** | **0.4** J | **0.22** | **0.24** | **0.54** J | **0.48** J | **0.23** | **0.18** | **0.26** | **0.35** J | 0.43 U | **0.22** | **0.28** |
| Xylenes (m&p) | **0.45** | **1** J | **0.43** | **0.45** | **1.1** J | **1.1** J | **0.46** | **0.43** | **0.77** | **1** | 0.87 U | **0.44** | **0.55** |

**Notes:**
Volatile Organic Compounds by Method TO15
Results in micrograms per cubic meter (µg/m3)
NA = Not Analyzed
Only detected compounds shown
Detected compounds in bold
Qualifier
U = not detected at the reporting limit
UJ = not detected at the reporting limit, estimated
J = estimated value
Location ID:
IA = indoor air sample
SV = Soil Vapor
AA = outdoor ambient air sample
QC Code: FS=Field Sample; FD=Field Duplicate

**Table 4.7: SVI Results**

| **Address** | **45 Main St (Building 006) (Flower Shop)** | | | | | | | | **(Coffee Shop)** | | **Ambient Air** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location** | IA-06CS | | IA-06CSE | | IA-06CSW | | IA-06F1E | | IA-06F1W | | Outside Air | Outside Air |
| **Field Sample Date** | 12/21/2022 | | 3/21/2023 | | 3/21/2023 | | 12/21/2022 | | 12/21/2022 | | 12/21/2022 | 3/21/2023 |
| **Field Sample ID** | 360175-IA006CS | | 360175-IA006CSE | | 360175-IA006CSW | | 360175-IA006F1E | | 360175-IA006F1W | | 360175-AA001 | 360175-AA001 |
| **QC Code** | FS | | FS | | FS | | FS | | FS | | FS | FS |
| **Parameter** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result Qualifier | Result Qualifier |
| **VOCs (µg/m3)** | | | | | | | | | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | **0.55** | J | 1.5 | U | 1.5 | U | **0.57** | J | **0.69** | J | **0.48** J | 1.5 U |
| 1,2,4-Trimethylbenzene | **1.5** | | 0.98 | U | **2.4** | | **4.3** | | 0.17 | U | 0.17 U | 0.98 U |
| 1,2-Dichloroethane | 0.14 | U | 0.81 | U | 0.81 | U | **0.17** | | **0.2** | | 0.14 U | 0.81 U |
| 1,3,5-Trimethylbenzene | **0.49** | | 0.98 | U | **1.6** | | **1.1** | | 0.17 | U | 0.17 U | 0.98 U |
| 1,3-Butadiene | 0.077 | U | 0.44 | U | 0.44 | U | 0.077 | U | 0.077 | U | 0.077 U | 0.44 U |
| 1,4-Dichlorobenzene | 0.21 | U | 1.2 | U | 1.2 | U | 0.21 | U | 0.21 | U | 0.21 U | 1.2 U |
| 2-Butanone | 4.1 | U | 1.5 | U | **1.8** | | **1.3** | J | **5.1** | | 4.1 U | 1.5 U |
| 2-Hexanone | 0.29 | U | 2 | U | 2 | U | 0.29 | U | 0.29 | U | 0.29 U | 2 U |
| 2-Propanol | **3.4** | J | 12 | U | 12 | U | **68** | | **38** | | **0.92** J | 12 U |
| 4-Ethyltoluene | **0.34** | | 0.98 | U | **0.42** | J | **0.6** | | 0.17 | U | 0.17 U | 0.98 U |
| 4-iso-Propyltoluene | NA | | 1.1 | U | **1.7** | | NA | | NA | | NA | 1.1 U |
| 4-Methyl-2-pentanone | **0.094** | J | 2 | U | 2 | U | 0.14 | U | 0.14 | U | 0.14 U | 2 U |
| Acetone | **23** | | **6.7** | J | **9.7** | J | **89** | | **48** | | **5.5** | **5.5** J |
| Benzene | **0.75** | | **0.39** | J | **0.89** | | **0.98** | | **1.4** | | **0.71** | **0.52** J |
| Bromodichloromethane | 0.23 | U | 1.3 | U | 1.3 | U | 0.23 | U | **0.25** | | 0.23 U | 1.3 U |
| Butane | NA | | **2.9** | | **2.2** | | NA | | NA | | NA | **3.8** |
| Carbon disulfide | 1.1 | U | 1.6 | U | **2.1** | | 1.1 | U | 1.1 | U | 1.1 U | 1.6 U |
| Carbon tetrachloride | **0.44** | | **0.28** | | **0.27** | | **0.32** | | **0.59** | | **0.44** | **0.28** |
| Chlorodifluoromethane | NA | | **1.4** | J | **1.4** | J | NA | | NA | | NA | **2.8** |
| Chloroethane | 0.092 | U | 1.3 | U | 1.3 | U | 0.092 | U | **0.15** | | 0.092 U | 1.3 U |
| Chloroform | **0.51** | | **0.28** | J | **0.33** | J | **0.89** | | **27** | | 0.17 U | **0.79** J |
| Chloromethane | **0.87** | | **0.63** | J | **1.3** | | **0.96** | | **1.6** | | **0.92** | **1.1** |
| cis-1,2-Dichloroethene | **0.12** | J | 0.2 | U | 0.2 | U | 0.14 | U | 0.14 | U | 0.14 U | 0.2 U |
| Cyclohexane | **0.13** | | **0.28** | J | 0.69 | U | **2** | | **0.22** | | 0.12 U | 0.69 U |
| Dichlorodifluoromethane | **2.5** | | **1.9** | J | **2** | J | **3** | | **3.4** | | **2.6** | **2** J |
| Ethanol | **10** | | NA | | NA | | **60** | | **1700** | | **8.9** | NA |
| Ethyl acetate | 1.3 | U | NA | | NA | | 1.3 | U | **61** | | 1.3 U | NA |
| Ethylbenzene | **0.25** | | 0.87 | U | **67** | | **1.3** | | **0.12** | J | 0.15 U | 0.87 U |
| Heptane | **0.57** | | 0.82 | U | **0.34** | J | **1.1** | | **1.5** | | **0.14** | **1.1** |
| Hexachlorobutadiene | 0.37 | UJ | 2.1 | U | 2.1 | U | 0.37 | UJ | **0.38** | J | 0.37 UJ | 2.1 U |
| Hexane | **1.1** | J | **0.48** | J | **0.47** | J | **0.79** | J | **2.7** | J | 4.9 U | **1.5** J |
| Isooctane | NA | | **0.2** | J | **0.21** | J | NA | | NA | | NA | **0.25** J |
| Methylene chloride | 1.2 | U | 1.7 | U | **1.2** | J | 1.2 | U | **1.3** | | 1.2 U | **0.65** J |
| Naphthalene | 0.18 | U | 2.6 | U | 2.6 | U | 0.18 | U | 0.18 | U | 0.18 U | 2.6 U |
| Propylene | 2.4 | U | NA | | NA | | 2.4 | U | 2.4 | U | 2.4 U | NA |
| sec-Butylbenzene | NA | | 1.1 | U | **0.27** | J | NA | | NA | | NA | 1.1 U |
| Styrene | **0.089** | J | 0.85 | U | 0.85 | U | **0.2** | | 0.15 | U | 0.15 U | 0.85 U |
| Tetrachloroethene | **0.35** | | **0.59** | J | 1.4 | U | 0.24 | U | **2.1** | | **0.89** | **0.7** J |
| Tetrahydrofuran | 1 | U | 15 | U | 15 | U | 1 | U | **1.7** | | 1 U | 15 U |
| Toluene | **14** | | **1** | | **1.4** | | **11** | | **4.5** | | **0.47** | **1** |
| trans-1,2-Dichloroethene | 0.14 | U | 0.79 | U | 0.79 | U | 0.14 | U | **0.84** | | 0.14 U | 0.79 U |
| Trichloroethene | 0.19 | U | 0.2 | U | 0.2 | U | 0.19 | U | **0.16** | J | 0.19 U | 0.2 U |
| Trichlorofluoromethane | **1.5** | | **1.1** | | **1.4** | | **1.4** | | **54** | | **1.3** | **0.94** J |
| Vinyl acetate | 2.5 | U | NA | | NA | | **1.7** | J | **4.7** | | **0.93** J | NA |
| Xylene, o | **0.28** | | 0.87 | U | **50** | | **0.99** | | **0.079** | J | 0.15 U | 0.87 U |
| Xylenes (m&p) | **0.63** | | **0.5** | J | **280** | | **2.9** | | **0.23** | J | 0.3 U | **0.49** J |

**Notes:**

Volatile Organic Compounds by Method TO15

Results in micrograms per cubic meter (µg/m3)

NA = Not Analyzed

Only detected compounds shown

Detected compounds in bold

Qualifier

U = not detected at the reporting limit

UJ = not detected at the reporting limit, estimated

J = estimated value

Location ID:

IA = indoor air sample

SV = Soil Vapor

AA = outdoor ambient air sample

QC Code: FS=Field Sample; FD=Field Duplicate

**Table 9.1: Identification and Screening of Potential Remedial Technologies**

| Environmental Media | General Response Action | Remedial Technology | Process Option | Applicability to | | Screening Status | Comments |
|---|---|---|---|---|---|---|---|
| | | | | Site-Limiting Characteristics | Waste-Limiting Characteristics | | |
| Soil (COCs are PFAS at 53 and 49 Main Street) | No Action | Not Applicable | Not Applicable | None. | Would not reduce toxicity, mobility, or volume of PFAS contaminants. | Retained. | Retained to be carried through as a baseline comparison to other alternatives. |
| | Institutional Controls | Land Use Restrictions | Land Use Restrictions | Would require coordination and approval from the town and the current property owners. | Would not reduce toxicity, mobility, or volume of PFAS contaminants. | Retained. | Viable as a component of remedial actions which do not involve remediation allowing for unrestricted use. |
| | | Fencing | Fencing | Would not limit direct exposure to site workers, and would reduce site Access that may be necessary for emergency exit from 49 Main Street. | Would not reduce toxicity, mobility, or volume of PFAS contaminants. | Eliminated. | Not viable due to site-limiting characteristics. |
| | Containment | Capping | Soil Cover | Contamination starts from ground surface (or under asphalt) and ranges from two to five feet below ground surface. A soil cover would not be implemented over the impacted area that already has an asphalt cover (driveway); however, a soil cover could be implemented in the adjacent yard, but shallow soil would need to be removed to allow space for cover. | Would prevent exposure to impacted soils but not reduce toxicity, mobility, or volume of PFAS contaminants. | Retained. | Viable as a component to prevent direct contact. |
| | | | Low Permeability Cover System | A portion of the impacted area is already under asphalt cover (driveway); however, a low permeable cover could be added to the landscaped yard. | Would prevent exposure to impacted soils but not reduce toxicity, mobility, or volume of PFAS contaminants. | Retained. | Viable as component to prevent direct contact. |
| | Removal | Excavation | Soil Excavation | Excavation near buildings may require geotechnical protection measures to access contaminated soils. Excavation would also require coordination and approval from the town (permit) and the current owners. | None. | Retained. | Viable as a component of remedial action where the excavation is limited or is for removal of source area soils. Retain for further evaluation. |
| | In-Situ Treatment | Biological Treatment | Enhanced Biodegradation | Injecting biological amendments may result in unpredictable distribution of amendments and uncertain contact with contaminants. Soil mixing may be effective at distributing the amendment over the contaminated area. | Although some trials have been conducted, PFAS may not be amenable for biological treatment to be significantly effective. Would not reduce toxicity, mobility, or volume of PFAS contaminants. | Eliminated. | Not viable for PFAS remediation |
| | | Physical Treatment | Solidification/ Stabilization | Soil stabilization using sorbents that can be mixed with the soils to prevent PFAS from leaching into groundwater. Shallow in situ soil mixing may be effective at distributing the amendments/reagents over the contaminated area; however, asphalt will need to be removed and disposed offsite and approval and coordination from the town and current owners would be necessary. | Solidification/ stabilization using appropriately selected sorbents that leads to chemical fixation or immobilization has ability to effectively immobilize PFAS contamination in soil; however, it would not reduce toxicity or volume of PFAS contaminants. | Retained | Retained for further evaluation. |
| | | Thermal Treatment | Electrical Resistance Heating or Other Thermal Technology | Requires the installation and operation of an on-site treatment system and engineering controls to mitigate risk of exposure to high temperature and soil vapor. Requires a substantial power source for thermal remediation and space to install a treatment system to treat soil vapors for PFAS. | Increased temperatures will volatilize contaminants, increasing the risk for soil vapor exposure. Would not significantly reduce toxicity, mobility, or volume of PFAS contaminants. | Eliminated. | Not viable for PFAS remediation |
| | | Chemical Treatment | Oxidation | Injecting chemical oxidants may result in unpredictable distribution of reagents and uncertain contact with contaminants. Soil mixing may be effective at distributing the reagents over the contaminated area, but would require approval and coordination from the town and current owner. | Chemical oxidation may not be fully successful in destroying all the PFAS mass and smaller chain PFAS mass may increase as oxidation progresses. Would not significantly reduce toxicity, mobility, or volume of PFAS contaminants. In Situ chemical oxidation for PFAS remediation has not been applied successfully at full-scale. | Eliminated. | Not viable for PFAS remediation |

| Environmental Media | General Response Action | Remedial Technology | Process Option | Applicability to | | Screening Status | Comments |
|---|---|---|---|---|---|---|---|
| | | | | Site-Limiting Characteristics | Waste-Limiting Characteristics | | |
| Groundwater (COCs are PFAS and VOCs) | No Action | Not Applicable | Not Applicable | None. | Would not reduce toxicity, mobility, or volume of VOC and PFAS contaminants. | Retained. | Retained to be carried through as a baseline comparison to other alternatives. |
| | Institutional Controls | Groundwater Use Restrictions | Restrict use/drilling of production wells | Groundwater is not currently used as a drinking water source in the vicinity of the site. Would need to ensure that future supply wells are not installed. Would require coordination and approval from the town and the current owner. | Would not reduce toxicity, mobility, or volume of VOC and PFAS contaminants, but would ensure that groundwater is not used as a drinking water source in the future. | Retained. | Viable as a component of remedial actions which do not involve remediation allowing for unrestricted use. |
| | Natural Attenuation | Groundwater Monitoring | Long-term Monitoring | None. | May not reduce toxicity, mobility, or volume of VOC and PFAS contaminants in a reasonable timeframe. | Retained. | Viable as a component of remedial actions to monitor the effectiveness of treatment. |
| | Containment | Capping | Low Permeability Cover System | The impacted area is below the building slab and below groundwater table where a low permeable cover would not decrease groundwater impacts. | Would not reduce toxicity, mobility, or volume of VOC and PFAS contaminants. | Eliminated. | Not viable for remediation of contaminants currently in groundwater. |
| | | Vertical Barriers | Slurry wall, sheet piling | Installation would be complicated by contaminant location beneath the building slab and limited amount of accessible space around the building. Demolition of the building would simplify installation but would require coordination and approval from the town and the current owner. | Would decrease mobility, but would not reduce toxicity or volume of VOC or PFAS contaminants. | Eliminated. | Not viable given current development of area (i.e., buildings and roads). |
| | In-Situ Treatment | Biological Treatment | Enhanced Biodegradation/Enhanced Reductive Dechlorination | Injecting biological amendments may result in unpredictable distribution of amendments and uncertain contact with contaminants. The impacted plume also extends over 100 ft beyond the borders of the site where the remedy may not be implemented to the required designed scale due to existing building structure and lack of locations to inject. Multiple rounds of low pressure/gravity feed injections may be required. | Would increase the volume of some of the VOC contaminants/daughter products temporarily before entire contaminant mass is reduced. Would not reduce toxicity, mobility, or volume of PFAS contaminants. In Situ bioremediation for PFAS has not been applied successfully at full-scale. | Retained. | Viable as a component of remedial action for VOCs. Retained for further evaluation. |
| | | | Biosparging | Would need to be conducted simultaneously with existing subslab depressurization system and require space for biosparging system installation. | Would require long-term operation and maintenance to degrade VOCs but it would not reduce toxicity, mobility, or volume of PFAS contaminants. | Retained | Viable as a component of remedial action for VOCs. Retained for further evaluation. |
| | | Physical Treatment | Stabilization | Stabilization in groundwater using liquid carbon to "bind" VOC and PFAS contamination; however it may be difficult to treat all areas due to access (buildings/utilities/roads). | Would reduce mobility of VOCs and PFAS; however, would not reduce volume or toxicity of PFAS contamination. May allow for in-situ treatment of VOCs through biological degradation. | Retained | Viable as a component of remedial actions for VOCs and/or PFAS. |
| | | | Permeable Reactive Barrier | May require demolition of buildings, or disruption to sidewalks and streets depending on location of the barrier wall. | Would decrease mobility, but would not reduce the volume of PFAS contaminants. | Eliminated. | Not viable for PFAS remediation, and not viable given current development of area (i.e., buildings and roads). |
| | | Thermal Treatment | Electrical Resistance Heating or Other Thermal Technology | Requires demolition of the existing building, construction and operation of a treatment facility, and coordination and approval from the town and the current property owners. | Would reduce toxicity, mobility, and volume of VOC contaminants but it would not significantly reduce toxicity and mobility of PFAS contaminants. Some PFAS may be removed during vapor extraction. | Eliminated. | Not viable for PFAS remediation and access limitations for VOC remediation. |
| | | Chemical Treatment | Oxidation | Chemical oxidants need to come in contact with impacted water to be effective, and the impacted plume extends over 100 ft beyond the borders of the site where the remedy may not be implemented to the required designed scale due to existing building structure and lack of locations to inject. Multiple rounds of low pressure/gravity feed injections may be required. | Would reduce toxicity, mobility, and volume of VOC contaminants but it would not reduce toxicity, mobility, and volume of PFAS contaminants. Some long chain PFAS may be oxidized to small chain PFAS compounds. In Situ chemical oxidation for PFAS remediation has not been applied successfully at full-scale. | Retained. | Viable as a component of remedial action for VOCs. Retained for further evaluation. |
| | Ex-Situ Treatment | Pump and Treat | Granular Activated Carbon and/or air stripping | The VOCs and PFAS plumes are under existing buildings and do not have additional space to install a pump and treat system. | Would require long-term operation and maintenance. Pump and treat technologies are effective in the short-term, but plateau and require long-term installation to meet remedial goals. Would reduce toxicity, mobility, and volume of VOC and PFAS contaminants. | Eliminated. | Not viable due to space requirements, as well as lack of significant source area to treat. |
| Soil Vapor (COCs are VOCs only, No PFAS issue for Soil Vapors) | No Action | Not Applicable | Not Applicable | Not Applicable | Will not reduce toxicity, mobility, or volume of site related contaminants. | Retained | Retained to be carried through as a baseline comparison to other alternatives. |
| | Engineering Controls | Sub-Slab Depressurization | Sub-Slab Depressurization (SSD) | This would be conducted in on-site or off-site structures as applicable. Limiting characteristics would be structure specific and could include condition of the structure floor, the high groundwater table, and space restrictions. | None | Retained | Retained to be carried through as a component of other alternatives if deemed necessary in future. |

**Table 9.2: Detailed Technology Screening of Retained Technologies**

| Environmental Media | General Response Action | Remedial Technology | Process Option | Effectiveness | Implementability | Relative Cost | Screening Status | Comments |
|---|---|---|---|---|---|---|---|---|
| Soil (COCs are PFAS at 53 and 49 Main Street) | No Action | Not Applicable | No Action | Not effective for reducing contamination concentrations or addressing the identified exposure pathways. | No technical issues with implementing this alternative. | No cost associated. | Retained | Retained to use as a baseline for comparison to other alternatives. |
| | Institutional Controls | Land Use Restrictions | Institutional Controls | Institutional controls alone will not reduce contaminant concentrations. | Institutional controls are relatively easy to implement, but require acceptance from the public. Institutional Controls are typically captured in a Site Management Plan (SMP) | Relative costs are low. | Retained | Retained as a component of alternatives. |
| | Containment | Capping | Soil Cover | Not effective for reducing contamination concentrations but can prevent the exposure pathways from shallow soils. | There are no technical issues with implementing this alternative. A soil cover would not be implemented over the impacted area that already has an asphalt cover (driveway); however, a soil cover could be implemented in the adjacent yard, but shallow soil would need to be removed to allow space for cover. | Relative costs are low. | Eliminated. | Preferrable to either remove or cap with low permeability cover. |
| | | | Low Permeability Cover System | Not effective for reducing contamination concentrations but can prevent the exposure pathways from shallow soils. Reduced infiltration of rainwater would limit leaching of shallow soil contamination to groundwater. | There are no technical issues with implementing this alternative. A portion of the impacted area is already under asphalt cover (driveway); however, a low permeable cover could be added to the landscaped yard. | Relative costs are low. | Retained | Retained as a component of alternatives. |
| | Removal | Excavation | Soil Excavation | Excavation is an effective way to remove contaminated soil acting as either a source of direct contact (surface soil) or a continuing source to groundwater contamination. | The majority of the impacted area has asphalt cover and contamination starts from ground surface (under asphalt) and ranges from surface to five feet below ground surface. Excavation near buildings may require geotechnical protection measures to access contaminated soils. Excavation would require coordination and approval from the town and the current owners. | Relative costs are medium to high depending on the quantity and depth of soil removed. The primary items contributing to costs include transportation and disposal of soil and underground utilities. | Retained | Retained as a component of alternatives. |
| | In Situ Treatment | Physical Treatment | Solidification/ Stabilization | Solidification/ Stabilization using appropriately selected sorbent/s and/or binding agent/s is an effective way to remove contaminated soil acting as either a source of direct contact (surface soil) or a continuing source to downgradient groundwater contamination. | In situ soil mixing near buildings may require geotechnical protection measures to access contaminated soils. Equipment required for mixing and adding stabilization amendment would take a lot of space. Soil mixing around utilities will need additional protection measures. Although implementable, due to shallow nature of contamination, if excavating to mix soil, preferrable to remove given residential area. | Relative costs are medium to high for shallow soil mixing. The primary items contributing to costs include working around underground utilities and in situ mixing. | Eliminated. | Since physical work would be similar to excavation, it is preferable to remove the contaminated soil rather than solidify in place in residential setting. |

**Table 9.2: Detailed Technology Screening of Retained Technologies**

| Environmental Media | General Response Action | Remedial Technology | Process Option | Effectiveness | Implementability | Relative Cost | Screening Status | Comments |
|---|---|---|---|---|---|---|---|---|
| Groundwater (COCs are PFAS and VOCs) | No Action | Not Applicable | Not Applicable | Not effective for reducing contamination concentrations or addressing the identified exposure pathways. | There are no technical issues with implementing this alternative. | No cost | Retained. | Retained to be carried through as a baseline comparison to other alternatives. |
| | Institutional Controls | Groundwater Use Restrictions | Restrict use/drilling of production wells | Institutional controls will not reduce contaminant concentrations but does eliminate potential exposure pathways resulting from extraction and direct contact with groundwater | There are no technical issues with implementing this alternative. Institutional controls are relatively easy to implement and are typically captured in a Site Management Plan (SMP). | Relative costs are low | Retained. | Viable as a component of remedial actions which do not involve remediation allowing for unrestricted use. |
| | Natural Attenuation | Groundwater Monitoring | Long-term Monitoring | The limited evidence of degradation products at the site and the persistence of contamination throughout the history of the site both suggest that MNA will not be effective in the short term or in ultimately achieving SCGs. | There are no technical issues with implementing this alternative. | Relative costs are low | Retained. | Viable as a component of remedial actions to monitor the effectiveness of treatment. |
| | In-Situ Treatment | Biological Treatment | Enhanced Anaerobic Bioremediation through permanent or temporary injection points | Enhanced Biodegradation of CVOCs is potentially effective in reducing the volume and toxicity of VOC contaminants at the site but it would not reduce toxicity, mobility, or volume of PFAS contaminants. Additionally biodegradation would not address the entirety of the off-site VOC plume extending over 100 ft from the property boundary. | Overlying structures would make it difficult to evenly distribute amendments and ensure good contact with contaminated media. The impacted plume also extends over 100 ft beyond the borders of the site where the remedy may not be implemented to the required designed scale due to existing building structure and lack of locations to inject. | Relative costs are medium to high | Retained. | Viable option in conjunction with other technologies that will eliminate off-site exposure pathways. |
| | | | Biosparging (Aerobic Remediation) through permanent air injection wells | Biosparging of CVOCs is potentially effective in reducing the volume and toxicity of VOC contaminants at the site but it would not reduce toxicity, mobility, or volume of PFAS contaminants. Additionally biosparging would not address the entirety of the off-site VOC plume extending over 100 ft from the property boundary. | The impacted plume also extends over 100 ft beyond the borders of the site where the remedy may not be implemented to the required designed scale due to existing building structure and lack of locations to inject. Lack of access and space at 49 Main Street for system installation would make this difficult to implement. | Relative costs are medium to high | Eliminated. | |
| | | Physical Treatment | Stabilization | Stabilization of VOCs and PFAS with liquid carbon is potentially effective in reducing the mobility of VOCs and PFAS, as well as assist in the biological degradation of VOCs; however, it would not reduce the toxicity or volume of PFAS contamination. | The impacted plume also extends over 100 ft beyond the borders of the site where the remedy may not be implemented to the required designed scale due to existing building structure and lack of locations to inject. | Relative costs are medium to high | Retained | Viable option in conjunction with other technologies to reduce downgradient concentrations. |
| | | Chemical Oxidation | In Situ chemical oxidation through permanent and temporary wells | Chemical oxidation of CVOCs is potentially effective in reducing the volume and toxicity of VOC contaminants at the site but it would not reduce toxicity, mobility, or volume of PFAS contaminants. Additionally chemical oxidation would not address the entirety of the off-site VOC plume extending over 100 ft from the property boundary. | The impacted plume also extends over 100 ft beyond the borders of the site where the remedy may not be implemented to the required designed scale due to existing building structure and lack of locations to inject. | Relative costs are medium to high | Retained. | Viable option in conjunction with other technologies that will eliminate off-site exposure pathways. |
| Soil Vapor (COCs are VOCs only, No PFAS issue for Soil Vapors) | No Action | Not Applicable | Not Applicable | Not effective for reducing contamination concentrations or addressing the identified exposure pathways. | There are no technical issues with implementing this alternative. | No cost | Retained | Retained to be carried through as a baseline comparison to other alternatives. |

**Table 9.2: Detailed Technology Screening of Retained Technologies**

| Environmental Media | General Response Action | Remedial Technology | Process Option | Effectiveness | Implementability | Relative Cost | Screening Status | Comments |
|---|---|---|---|---|---|---|---|---|
| | Engineering Controls | Sub-Slab Depressurization | Sub-Slab Depressurization | Sub-Slab Depressurization would reduce contaminants present in sub-slab soil vapor but does not ultimately reduce their toxicity, only changes what media they exist in (effluent vapor/discharged to atmosphere). | This would be conducted in on-site and off-site structures as applicable. Installing off-site SSDSs requires obtaining access to private properties to perform assessment of existing conditions and eventual installation. | Relative costs are low to medium | Retained | Viable option to eliminate potential vapor exposure pathways. |

**Table 11.1: Detailed Analysis and Comparison of Remedial Alternatives**

| Remedial Alternative | Breakdown of Remedy Components[1] | Overall Protection of Public Health and the Environment (Is / Partially / Is Not Protective) | Compliance with Standards, Criteria and Guidance[2] (Meets / Partially Meets / Does Not Meet) | Long-term Effectiveness and Permanence (Not/ Partially /Effective) | Reduction of Toxicity, Mobility, or Volume with Treatment (Will Not / Will Partially / Will Reduce) | Short-term Impacts[3] (Will / Will Partially / Not Result) | Short-term Effectiveness[3] (Not/ Partially/ Effective) | Implementability (No / Some Technical Difficulties) | Land Use (Compatible / Not Compatible) | Sustainability / Green Remediation (DER-31) (High / Medium / Low Compliance) | Cost[4] (Numerically Ranked, 1=Lowest cost) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Alternative 1: No Action** | **No Action for all Media** | Is not protective | Does not meet | Not effective or Permanent | Will Not Reduce | Will Not Result | Not Effective | No Technical Difficulties | Not compatible | High | 1<br>There are no costs associated with Alternative 1. |
| **Alternative 2: Soil Excavation with In-Situ Sorption, In-Situ Chemical Reduction, and Enhanced Bioremediation in Groundwater** | **PFAS Soil: Excavation to background.** | Is protective | Meets | Effective | Will Reduce | Will Result<br>20 Weeks | Effective | Some Technical Difficulties | Compatible | Low Compliance | 8<br>$2,821,000 |
| | **PFAS Impacted GW: In-situ Sorption with liquid carbon** | Partially Protective | Partially meets | Effective but not Permanent | Will Partially Reduce | | Partially Effective | Some Technical Difficulties | Compatible | Low Compliance | |
| | **VOC Impacted GW Beneath Buildings: ISCR and enhanced Bioremediation** | Is protective | Meets | Effective | Will Reduce | | Partially Effective | Some Technical Difficulties | Compatible | Low Compliance | |
| | **VOC Impacted GW Outside Building Footprints: ISCR and enhanced Bioremediation** | Is protective | Meets | Effective | Will Reduce | | Partially Effective | Some Technical Difficulties | Compatible | Low Compliance | |
| **Alternative 3a: Soil Excavation with In-Situ Chemical Oxidation of Groundwater** | **PFAS Soil: Excavation to residential standards.** | Is protective | Meets | Effective | Will Partially Reduce | Will Result<br>12 Weeks | Effective | Some Technical Difficulties | Compatible | Medium | 7<br>$1,751,000 |
| | **PFAS Impacted GW: ICs and Longterm Monitoring** | Partially Protective | Does not meet | Not effective | Will Not Reduce | | Not Effective | No Technical Difficulties | Compatible | High | |
| | **VOC Impacted GW Beneath Buildings: ISCO** | Is protective | Partially meets | Effective | Will Reduce | | Partially Effective | Some Technical Difficulties | Compatible | Medium | |
| | **VOC Impacted GW Outside Building Footprints: ICs and long-term monitoring** | Partially Protective | Does not meet | Not effective | Will Not Reduce | | Not Effective | No Technical Difficulties | Compatible | High | |
| **Alternative 3b: Soil Excavation with Enhanced Bioremediation of Groundwater** | **PFAS Soil: Excavation to residential standards.** | Is protective | Meets | Effective | Will Partially Reduce | Will Result<br>11 Weeks | Effective | Some Technical Difficulties | Compatible | Medium | 6<br>$1,605,000 |
| | **PFAS Impacted GW: ICs and Longterm Monitoring** | Partially Protective | Does not meet | Not effective | Will Not Reduce | | Not Effective | No Technical Difficulties | Compatible | High | |
| | **VOC Impacted GW Beneath Buildings: Enhanced Bioremediation** | Is protective | Partially meets | Effective | Will Reduce | | Partially Effective | Some Technical Difficulties | Compatible | Medium | |
| | **VOC Impacted GW Outside Building Footprints: ICs and long-term monitoring** | Partially Protective | Does not meet | Not effective | Will Not Reduce | | Not Effective | No Technical Difficulties | Compatible | High | |

**Table 11.1: Detailed Analysis and Comparison of Remedial Alternatives**

| Remedial Alternative | Breakdown of Remedy Components[1] | Overall Protection of Public Health and the Environment (Is / Partially / Is Not Protective) | Compliance with Standards, Criteria and Guidance[2] (Meets / Partially Meets / Does Not Meet) | Long-term Effectiveness and Permanence (Not/ Partially /Effective) | Reduction of Toxicity, Mobility, or Volume with Treatment (Will Not / Will Partially / Will Reduce) | Short-term Impacts[3] (Will / Will Partially / Not Result) | Short-term Effectiveness[3] (Not/ Partially/ Effective) | Implementability (No / Some Technical Difficulties) | Land Use (Compatible / Not Compatible) | Sustainability / Green Remediation (DER-31) (High / Medium / Low Compliance) | Cost[4] (Numerically Ranked, 1=Lowest cost) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Alternative 4a: Low Permeability Cover System with In-Situ Chemical Oxidation of Groundwater** | **PFAS Soil: Partial Excavation with Low Permeability Cover System** | Partially Protective | Partially meets | Effective | Will Reduce | Will Result<br>10 Weeks | Effective | Some Technical Difficulties | Compatible | Medium | 5<br>$1,583,000 |
| | **PFAS Impacted GW: ICs and long-term monitoring** | Partially Protective | Does not meet | Not effective | Will Not Reduce | | Not Effective | No Technical Difficulties | Compatible | High | |
| | **VOC Impacted GW Beneath Buildings: ISCO** | Is protective | Partially meets | Effective | Will Reduce | | Partially Effective | Some Technical Difficulties | Compatible | Medium | |
| | **VOC Impacted GW Outside Building Footprints: ICs and long-term monitoring** | Partially Protective | Does not meet | Not effective | Will Not Reduce | | Not Effective | No Technical Difficulties | Compatible | High | |
| **Alternative 4b: Low Permeability Cover System with Enhanced Bioremediation of Groundwater** | **PFAS Soil: Partial Excavation with Low Permeability Cover System** | Partially Protective | Partially meets | Effective | Will Reduce | Will Result<br>9 Weeks | Effective | Some Technical Difficulties | Compatible | Medium | 3<br>$1,441,000 |
| | **PFAS Impacted GW: ICs and long-term monitoring** | Partially Protective | Does not meet | Not effective | Will Not Reduce | | Not Effective | No Technical Difficulties | Compatible | High | |
| | **VOC Impacted GW Beneath Buildings: Enhanced Bioremediation** | Is protective | Partially meets | Effective | Will Reduce | | Partially Effective | Some Technical Difficulties | Compatible | Medium | |
| | **VOC Impacted GW Outside Building Footprints: ICs and long-term monitoring** | Partially Protective | Does not meet | Not effective | Will Not Reduce | | Not Effective | No Technical Difficulties | Compatible | High | |
| **Alternative 5: Long Term Groundwater Monitoring and Institutional Controls** | **PFAS Soil: Institutional Controls.** | Not Protective | Does not meet | Not effective | Will Not Reduce | Will Partially Result<br>4 Weeks Well Installation and Injections | Not Effective | Some Administrative Difficulties | Not compatible | High | 4<br>$1,532,000 |
| | **PFAS Impacted GW: ICs and long-term monitoring** | Partially Protective | Does not meet | Not effective | Will Not Reduce | | Not Effective | No Technical Difficulties | Compatible | High | |
| | **VOC Impacted GW Beneath Buildings: ISCO** | Is protective | Partially meets | Effective | Will Reduce | | Partially Effective | Some Technical Difficulties | Compatible | Medium | |
| | **VOC Impacted GW Outside Building Footprints: ISCR and enhanced Bioremediation (Small Area) and IC's/LTM** | Is protective | Meets | Effective | Will Reduce | | Partially Effective | Some Technical Difficulties | Compatible | Medium | |
| **Alternative 6: Long Term Groundwater Monitoring and Institutional Controls** | **PFAS Soil: Institutional Controls.** | Not Protective | Does not meet | Not effective | Will Not Reduce | Will Partially Result<br>1 Week of Well Installation | Not Effective | Some Administrative Difficulties | Not compatible | High | 2<br>$1,117,000<br>Minimal capital costs. |
| | **PFAS Impacted GW: ICs and long-term monitoring** | Partially Protective | Does not meet | Not effective | Will Not Reduce | | Not Effective | No Technical Difficulties | Compatible | High | |
| | **VOC Impacted GW Beneath Buildings: ICs and long-term monitoring** | Is not protective | Does not meet | Not effective | Will Not Reduce | | Not Effective | No Technical Difficulties | Not compatible | High | |
| | **VOC Impacted GW Outside Building Footprints: ICs and long-term monitoring** | Partially Protective | Does not meet | Not effective | Will Not Reduce | | Not Effective | No Technical Difficulties | Compatible | High | |

Color indicates relative ranking of the remedial option based on the evaluation criteria.
Green indicates the most desirable result;
Orange indicates a less desirable result;
Pink indicates a negative result for the evaluation criteria.

**Notes:**
**(1)** A narrative discussion of the strengths and weaknesses of the remedial action alternatives relative to one another with respect to these evaluation criteria are included in Section 11.3 of the Feasibility Study.
**(2)** In alternatives where standards, criteria, and guidance values (SCGs) will not be met, contamination in excess of SCG values will remain onsite, leading to potential adverse human health and environmental impacts. It is possible that SCGs may be met at some time in the future due to natural attenuation processes.
**(3)** Adverse short-term impacts and health risks will be managed using temporary controls to prepare the Site for remedial action implementation, including but not limited to installation of an equipment decontamination area, implementation of erosion and sediment control measures, and the placement of temporary fencing around work areas. Implementation will also include preparation of and adherence to a construction work plan and a health and safety plan. The duration shows is for pre-design investigations and remedial implementation, but does not include Longterm Monitoring.
**(4)** Costs presented are the estimated total present worth (including capital costs and annual and periodic costs) for each alternative. Costs are further detailed in Tables 11.3 through 11.7 and Appendix G.

## Table 11.2: Applicable Location- and Action-Specific Standards, Criteria, and Guidance

| Requirement | Consideration in the Remedial Response Process |
|---|---|
| 29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response | Applicable to Health and Safety implementation, enforcement, and emergency response. |
| 6 NYCRR Part 700-705 Water Quality Regulations Surface Water and Groundwater Classifications and Standards | Applicable to the development and implementation of remedial programs. |
| 6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes (November 1998) | Applicable to the characterization, handling, transportation, and treatment/disposal of investigative derived waste and other soils/liquids generated that require removal from the Site. |
| 6 NYCRR Part 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities (November 1998) | Applicable to the handling, transportation, and treatment/disposal of investigative derived waste and other soils/liquids generated that require removal from the Site. |
| 6 NYCRR Part 375 - Environmental Remediation Programs (as amended December 2006) | Applicable to the development and implementation of remedial programs. |
| 6 NYCRR Part 376 - Land Disposal Restrictions | Applicable to disposal of hazardous wastes. Identifies those wastes that are restricted from land disposal. |
| DER-10 Technical Guidance for Site Investigation and Remediation | Applicable to the development and implementation of remedial programs. |
| Citizen Participation in New York's Hazardous Waste Site Remediation Program: A Guidebook (June 1998) | Applicable to the development and implementation of remedial programs. |
| Solidification/Stabilization and its Application to Waste Materials | May be applicable to disposal of wastes generated during implementation of remedial program. |
| DER-31 - Green Remediation (Revised January 2011) | Applicable to the development and implementation of remedial programs. |
| Sampling, Analysis, and Assessment of Per-and Polyfluoralkyl Substances (PFAS) (April 2023) | Applicable to the development and implementation of remedial programs. |
| NYSDOH Final Guidance for Evaluation of Soil Vapor Intrusion in the State of New York (Amended 2017 and 2024) | Applicable to the development and implementation of remedial programs. |
| USEPA Underground Injection Control (UIC) Permimtting. Form 7520-16. (April 2019) | Applicable to the development and implementation of remedial programs. |

**Table 11.3 Summary of Estimated Remedial Alternative Costs**

| Item | Description | Alternative 1 | Alternative 2 | Alternative 3 | | Alternative 4 | | Alternative 5 | Alternative 6 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 3a | 3b | 4a | 4b | | |
| 1 | Total Capital Costs[8] | $ - | $ 2,535,000 | $ 739,000 | $ 551,000 | $ 571,000 | $ 387,000 | $ 478,000 | $ 63,000 |
| | *Soil Remedy* | *$ -* | *$ 302,000* | *$ 187,000* | *$ 187,000* | *$ 81,000* | *$ 81,000* | *$ -* | *$ -* |
| | *GW Remedy* | *$ -* | *$ 1,367,000* | *$ 233,000* | *$ 112,000* | *$ 233,000* | *$ 112,000* | *$ 259,000* | *$ -* |
| 2 | Average Annual Cost (Present Worth)[9] | $ - | $ 10,000 | $ 34,000 | $ 35,000 | $ 34,000 | $ 35,000 | $ 35,000 | $ 35,000 |
| | | | | | | | | | |
| 3 | Present Worth of Annual and Periodic Costs | $ - | $ 286,000 | $ 1,012,000 | $ 1,054,000 | $ 1,012,000 | $ 1,054,000 | $ 1,054,000 | $ 1,054,000 |
| | | | | | | | | | |
| 4 | Total Present Worth (Item 1 plus item 3) | $ - | $ 2,821,000 | $ 1,751,000 | $ 1,605,000 | $ 1,583,000 | $ 1,441,000 | $ 1,532,000 | $ 1,117,000 |
| | | | | | | | | | |
| 5 | Total Non-Discounted Cost | $ - | $ 2,835,000 | $ 2,109,000 | $ 1,981,000 | $ 1,941,000 | $ 1,817,000 | $ 1,908,000 | $ 1,493,000 |
| | | | | | | | | | |

**Notes:**

1. Alternative 1: No Further Action
2. Alternative 2: PFAS Soil Excavation, On and Off-Property In-Situ Sorption, In-Situ Chemical Reduction, and Enhanced Bioremediation
3. Alternative 3:
   Alternative 3a: PFAS Soil Excavation and On-Property In-Situ Chemical Oxidation
   Alternative 3b: PFAS Soil Excavation and On-Property In-Situ Bioremediation
4. Alternative 4:
   Alternative 3a: PFAS Soil Capping and On-Property In-Situ Chemical Oxidation
   Alternative 3b: PFAS Soil Capping and On-Property Bioremediation
5. Alternative 5: On-Property In-Situ Chemical Oxidation (Beneath Buildings) and Enhanced Biorededediation (Back of Properties)
6. Alternative 6: Monitored Natural Attenuation
7. Costs in this summary table have been rounded to nearest thousand.
8. The breakdown of Soil Remedy and groundwater remedy does not include pre-design investigations or indirect costs, see tables 11.4 through 11.8 for additional information.
9. Average Annual Cost of each alternative is the average over 30 years, regardless of how long the annual costs will occur.

**Table 11.4: Cost Summary for Alternative 2**
**PFAS Soil Excavation, On and Off-Property In-Situ Sorption, In-Situ Chemical Reduction, and Enhanced Bioremediation**

| Item No. | Item Description | COST |
|---|---|---|
| **DIRECT CAPITAL COSTS** | | |
| **Pre-design Investigation** | | |
| 1A | Pre-Design Investigation and Baseline Sampling for Alternative 2 | $ 66,000 |
| **Implementation** | | |
| 2A | Implement PFAS Soil Excavation (4-feet) | $ 302,000 |
| 2D | Implement In-Situ Sorption (PFAS in GW) and ISCR/Bio (PCE in GW) - On and off-site locati | $ 1,367,000 |
| | Direct Cost Subtotal | $ 1,735,000 |
| **INDIRECT CAPITAL COSTS** | | |
| | Project Management (@ 6 Percent) | $ 105,000 |
| | Remedial Design (@ 12 Percent) | $ 209,000 |
| | Construction Management (@ 8 Percent) | $ 139,000 |
| | Contingency (@ 20 Percent) | $ 347,000 |
| | Indirect Cost Subtotal | $ 800,000 |
| **TOTAL CAPITAL COSTS** | | **$ 2,535,000** |
| **Long-Term Annual Costs*** | | |
| 3A | LTM & Reporting - Alt 2 (Years 1 through 5) | $ 60,000 |
| **PRESENT WORTH OF ANNUAL AND PERIODIC COSTS (5 yrs)** | | **$ 286,000** |
| | | |
| **TOTAL PRESENT WORTH OF ALTERNATIVE (5 yrs)** | | **$ 2,821,000** |
| | | |
| **TOTAL NON-DISCOUNTED COST OF ALTERNATIVE (5 yrs)** | | **$ 2,835,000** |

**NOTES:**
1. Costs have been rounded to the nearest thousand.
2. * - Costs include additional 10 percent for technical support and 25 percent contingency for unforeseen project complexities, including insurance, taxes, and licensing costs.

**Table 11.5: Cost Summary for Alternative 3a and 3b**
**PFAS Soil Excavation and On-Property In-Situ Chemical Oxidation (a) or Bioremediation(b)**

| Item No. | Item Description | COST Alternative 3A Chem Ox | COST Alternative 3B Bio |
|---|---|---|---|
| **DIRECT CAPITAL COSTS** | | | |
| **Pre-design Investigation** | | | |
| 1B | Pre-Design Investigation and Baseline Sampling for Alternative 3 | $ 36,000 | $ 36,000 |
| **Implementation** | | | |
| 2B | Implement PFAS Soil Excavation (Average 2 feet) | $ 187,000 | $ 187,000 |
| 2E | Implement In-Situ Chemical Oxidation (PCE) - On-Site only (49 & 53 Main St) | $ 233,000 | NA |
| 2F | Implement In-Situ Bioaugmentation - On-Site only (49 & 53 Main St) | NA | $ 112,000 |
| 2H | Institute ICs/EC & Site Management Plan | $ 25,000 | $ 25,000 |
| | Direct Cost Subtotal | $ 481,000 | $ 360,000 |
| **INDIRECT CAPITAL COSTS** | | | |
| | Project Management (@ 8 Percent) | $ 39,000 | $ 29,000 |
| | Remedial Design (@ 15 Percent) | $ 73,000 | $ 54,000 |
| | Construction Management (@ 10 Percent) | $ 49,000 | $ 36,000 |
| | Contingency (@ 20 Percent) | $ 97,000 | $ 72,000 |
| | Indirect Cost Subtotal | $ 258,000 | $ 191,000 |
| **TOTAL CAPITAL COSTS** | | **$ 739,000** | **$ 551,000** |
| **Long-Term Annual Costs*** | | | |
| 3B | LTM & Reporting - Alt 3a, 4a & 5 (Years 1 through 5) | $ 58,000 | NA |
| 3C | LTM & Reporting - Alt 3a, 4a, 5 (Years 6 through 30) | $ 36,000 | NA |
| 3D | LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 1 through 5) | NA | $ 60,000 |
| 3E | LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 6 through 30) | NA | $ 38,000 |
| 3F | Long Term IC/EC Inspections, Certifications and Reporting | $ 6,000 | $ 6,000 |
| **PRESENT WORTH OF ANNUAL AND PERIODIC COSTS (30 yrs)** | | **$ 1,012,000** | **$ 1,054,000** |
| **TOTAL PRESENT WORTH OF ALTERNATIVE (30 yrs)** | | **$ 1,751,000** | **$ 1,605,000** |
| **TOTAL NON-DISCOUNTED COST OF ALTERNATIVE (30 yrs)** | | **$ 2,109,000** | **$ 1,981,000** |

**NOTES:**

1. Costs have been rounded to the nearest thousand.
2. * - Costs include additional 10 percent for technical support and 25 percent contingency for unforeseen project complexities, including insurance, taxes, and licensing costs. Costs assume annual inspection and reporting.


Prepared by: JDW 3/21/25
Checked/Revised by: EKS 10/10/25

**Table 11.6: Cost Summary for Alternative 4a and 4b**
**PFAS Soil Capping and On-Property In-Situ Chemical Oxidation(a) or Bioremediation(b)**

| Item No. | Item Description | COST Alternative 4A Chem Ox | COST Alternative 4B Bio |
|---|---|---|---|
| **DIRECT CAPITAL COSTS** | | | |
| **Pre-design Investigation** | | | |
| 1C | Pre-Design Investigation and Baseline Sampling for Alternative 4 | $ 33,000 | $ 33,000 |
| **Implementation** | | | |
| 2C | Implement PFAS Minor Soil Excavation and Capping | $ 81,000 | $ 81,000 |
| 2E | Implement In-Situ Chemical Oxidation (PCE) - On-Site only (49 & 53 Main St) | $ 233,000 | NA |
| 2F | Implement In-Situ Bioaugmentation - On-Site only (49 & 53 Main St) | NA | $ 112,000 |
| 2H | Institute ICs/EC & Site Management Plan | $ 25,000 | $ 25,000 |
| | Direct Cost Subtotal | $ 372,000 | $ 251,000 |
| **INDIRECT CAPITAL COSTS** | | | |
| | Project Management (@ 8 Percent) | $ 30,000 | $ 21,000 |
| | Remedial Design (@ 15 Percent) | $ 56,000 | $ 38,000 |
| | Construction Management (@ 10 Percent) | $ 38,000 | $ 26,000 |
| | Contingency (@ 20 Percent) | $ 75,000 | $ 51,000 |
| | Indirect Cost Subtotal | $ 199,000 | $ 136,000 |
| **TOTAL CAPITAL COSTS** | | **$ 571,000** | **$ 387,000** |
| **Long-Term Annual Costs*** | | | |
| 3B | LTM & Reporting - Alt 3a, 4a & 5 (Years 1 through 5) | $ 58,000 | NA |
| 3C | LTM & Reporting - Alt 3a, 4a, 5 (Years 6 through 30) | $ 36,000 | NA |
| 3D | LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 1 through 5) | NA | $ 60,000 |
| 3E | LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 6 through 30) | NA | $ 38,000 |
| 3F | Long Term IC/EC Inspections, Certifications and Reporting | $ 6,000 | $ 6,000 |
| **PRESENT WORTH OF ANNUAL AND PERIODIC COSTS (30 yrs)** | | **$ 1,012,000** | **$ 1,054,000** |
| **TOTAL PRESENT WORTH OF ALTERNATIVE (30 yrs)** | | **$ 1,583,000** | **$ 1,441,000** |
| **TOTAL NON-DISCOUNTED COST OF ALTERNATIVE (30 yrs)** | | **$ 1,941,000** | **$ 1,817,000** |

**NOTES:**

1. Costs have been rounded to the nearest thousand.
2. * - Costs include additional 10 percent for technical support and 25 percent contingency for unforeseen project complexities, including insurance, taxes, and licensing costs. Costs assume annual inspection and reporting.


Prepared by: JDW 3/21/25
Checked/Revised by: EKS 10/10/25

**Table 11.7: Cost Summary for Alternative 5**
**PFAS Soil Capping and On-Property In-Situ Chemical Oxidation(a) or Bioremediation(b)**

| Item No. | Item Description | | COST |
|---|---|---|---|
| **DIRECT CAPITAL COSTS** | | | |
| **Pre-design Investigation** | | | |
| 1D | Pre-Design Investigation for Alternative 5 | $ | 27,000 |
| **Implementation** | | | |
| 2G | Implement ISCO (Beneath 49 & 53 Main Streeet), Bio-Augmentation (Back of pro | $ | 259,000 |
| 2H | Institute ICs/EC & Site Management Plan | $ | 25,000 |
| | Direct Cost Subtotal | $ | 311,000 |
| **INDIRECT CAPITAL COSTS** | | | |
| | Project Management (@ 8 Percent) | $ | 25,000 |
| | Remedial Design (@ 15 Percent) | $ | 47,000 |
| | Construction Management (@ 10 Percent) | $ | 32,000 |
| | Contingency (@ 20 Percent) | $ | 63,000 |
| | Indirect Cost Subtotal | $ | 167,000 |
| **TOTAL CAPITAL COSTS** | | **$** | **478,000** |
| **Long-Term Annual Costs*** | | | |
| 3B | LTM & Reporting - Alt 3a, 4a & 5 (Years 1 through 5) | $ | 58,000 |
| 3C | LTM & Reporting - Alt 3a, 4a, 5 (Years 6 through 30) | $ | 36,000 |
| 3F | Long Term IC/EC Inspections, Certifications and Reporting | $ | 6,000 |
| **PRESENT WORTH OF ANNUAL AND PERIODIC COSTS (30 yrs)** | | **$** | **1,054,000** |
| | | | |
| **TOTAL PRESENT WORTH OF ALTERNATIVE (30 yrs)** | | **$** | **1,532,000** |
| | | | |
| **TOTAL NON-DISCOUNTED COST OF ALTERNATIVE (30 yrs)** | | **$** | **1,908,000** |

**NOTES:**
1. Costs have been rounded to the nearest thousand.
2. * - Costs include additional 10 percent for technical support and 25 percent contingency for unforeseen project complexities, including insurance, taxes, and licensing costs. Costs assume annual inspection and reportir

**Table 11.8: Cost Summary for Alternative 6**
**Monitored Natural Attenuation**

| Item No. | Item Description | COST |
|---|---|---|
| **DIRECT CAPITAL COSTS** | | |
| **Pre-design Investigation** | | |
| 1E | Baseline Sampling for Alternative 6 | $ 23,000 |
| **Implementation** | | |
| 2H | Institute ICs/EC & Site Management Plan | $ 25,000 |
| | Direct Cost Subtotal | $ 48,000 |
| **INDIRECT CAPITAL COSTS** | | |
| | Project Management (@ 10 Percent) | $ 5,000 |
| | Remedial Design (@ 20 Percent) | NA |
| | Construction Management (@ 15 Percent) | NA |
| | Contingency (@ 20 Percent) | $ 10,000 |
| | Indirect Cost Subtotal | $ 15,000 |
| **TOTAL CAPITAL COSTS** | | **$ 63,000** |
| **Long-Term Annual Costs*** | | |
| 3D | LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 1 through 5) | $ 60,000 |
| 3E | LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 6 through 30) | $ 38,000 |
| 3F | Long Term IC/EC Inspections, Certifications and Reporting | $ 6,000 |
| **PRESENT WORTH OF ANNUAL AND PERIODIC COSTS (30 yrs)** | | **$ 1,054,000** |
| **TOTAL PRESENT WORTH OF ALTERNATIVE (30 yrs)** | | **$ 1,117,000** |
| **TOTAL NON-DISCOUNTED COST OF ALTERNATIVE (30 yrs)** | | **$ 1,493,000** |

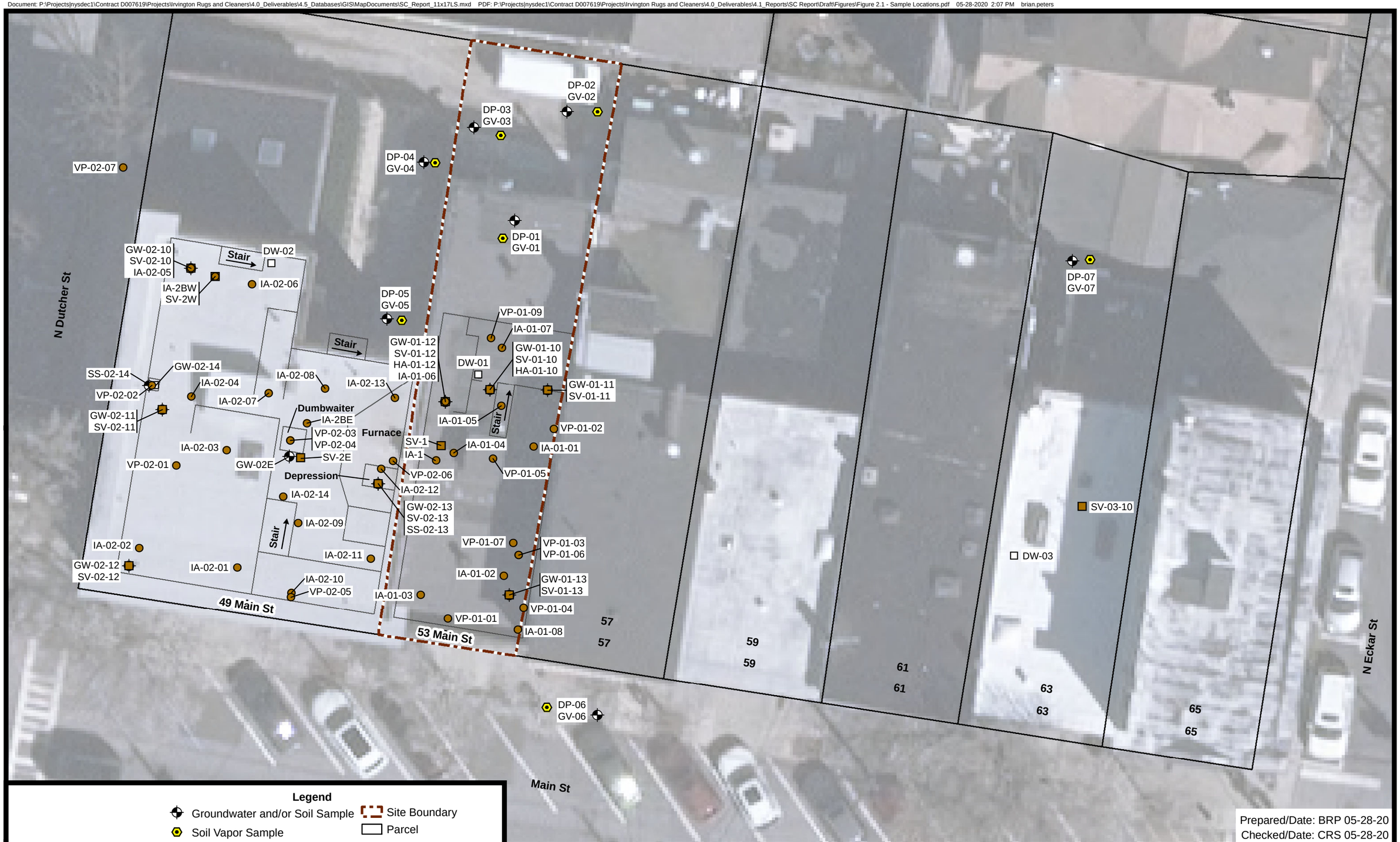
**NOTES:**

1. Costs have been rounded to the nearest thousand.
2. * - Costs include additional 10 percent for technical support and 25 percent contingency for unforeseen project complexities, including insurance, taxes, and licensing costs. Costs assume annual inspection and reporting.


Prepared by: JDW 3/21/25
Checked/Revised by: EKS 10/10/25

# APPENDIX A

# SELECT SITE CHARACTERIZATION REPORT TABLES, FIGURES, AND MICROBIAL RESULTS




**Legend**

- Groundwater and/or Soil Sample
- Soil Vapor Sample
- Sump Water Sample
- IA/VP Location
- SV Location
- Site Boundary
- Parcel

N

0 5 10 15 Feet

Note: Westchester County color digital orthoimagery (2016) obtained from New York State GIS Clearinghouse at: gis.ny.gov

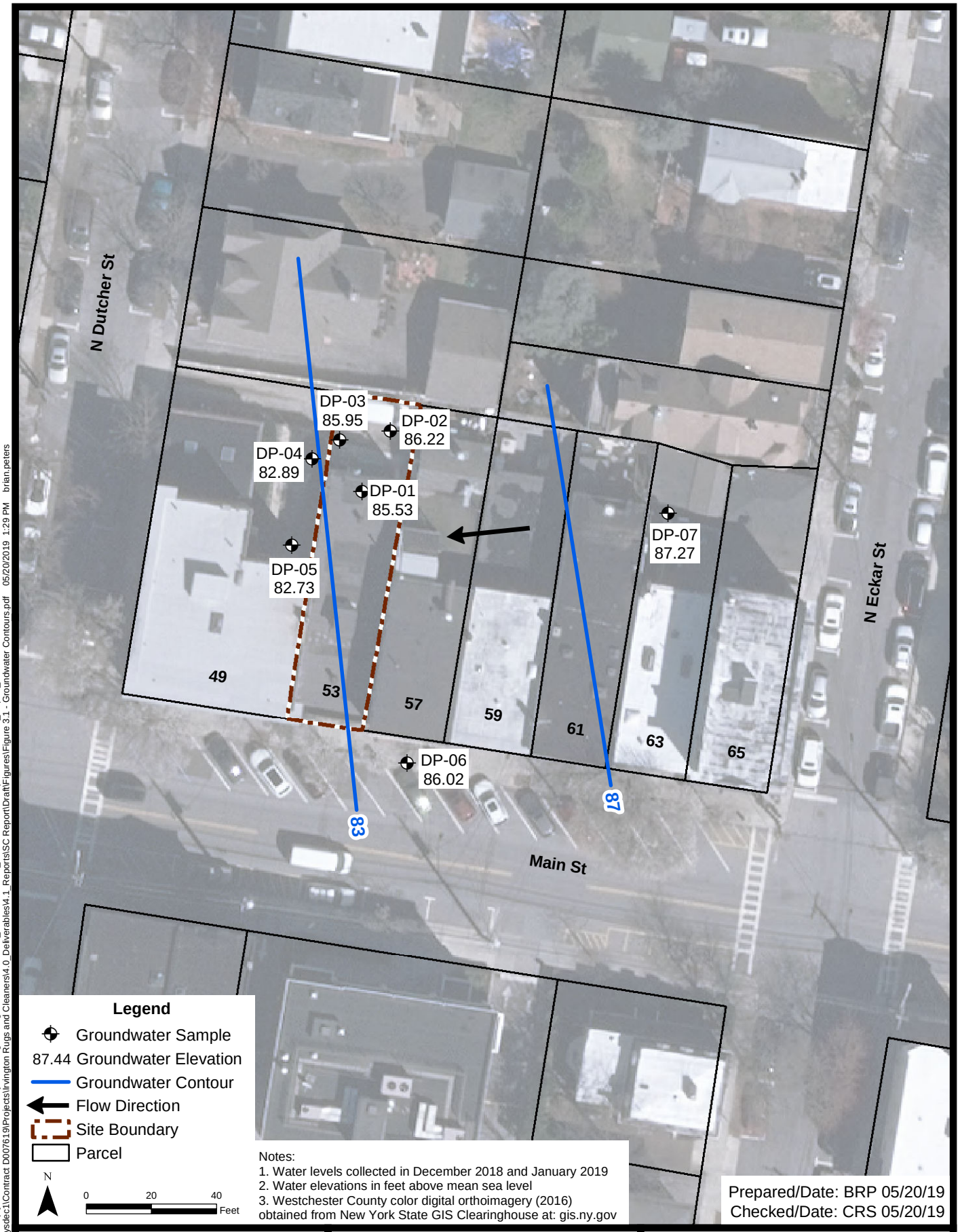
Prepared/Date: BRP 05-28-20
Checked/Date: CRS 05-28-20

NYSDEC Site # 360175
Irvington Rugs and Cleaners
Irvington, New York

MACTEC

Basement and Exterior Sample Locations

Project 3611181228 Figure A.1




Notes:
1. Water levels collected in December 2018 and January 2019
2. Water elevations in feet above mean sea level
3. Westchester County color digital orthoimagery (2016) obtained from New York State GIS Clearinghouse at: gis.ny.gov

Prepared/Date: BRP 05/20/19
Checked/Date: CRS 05/20/19

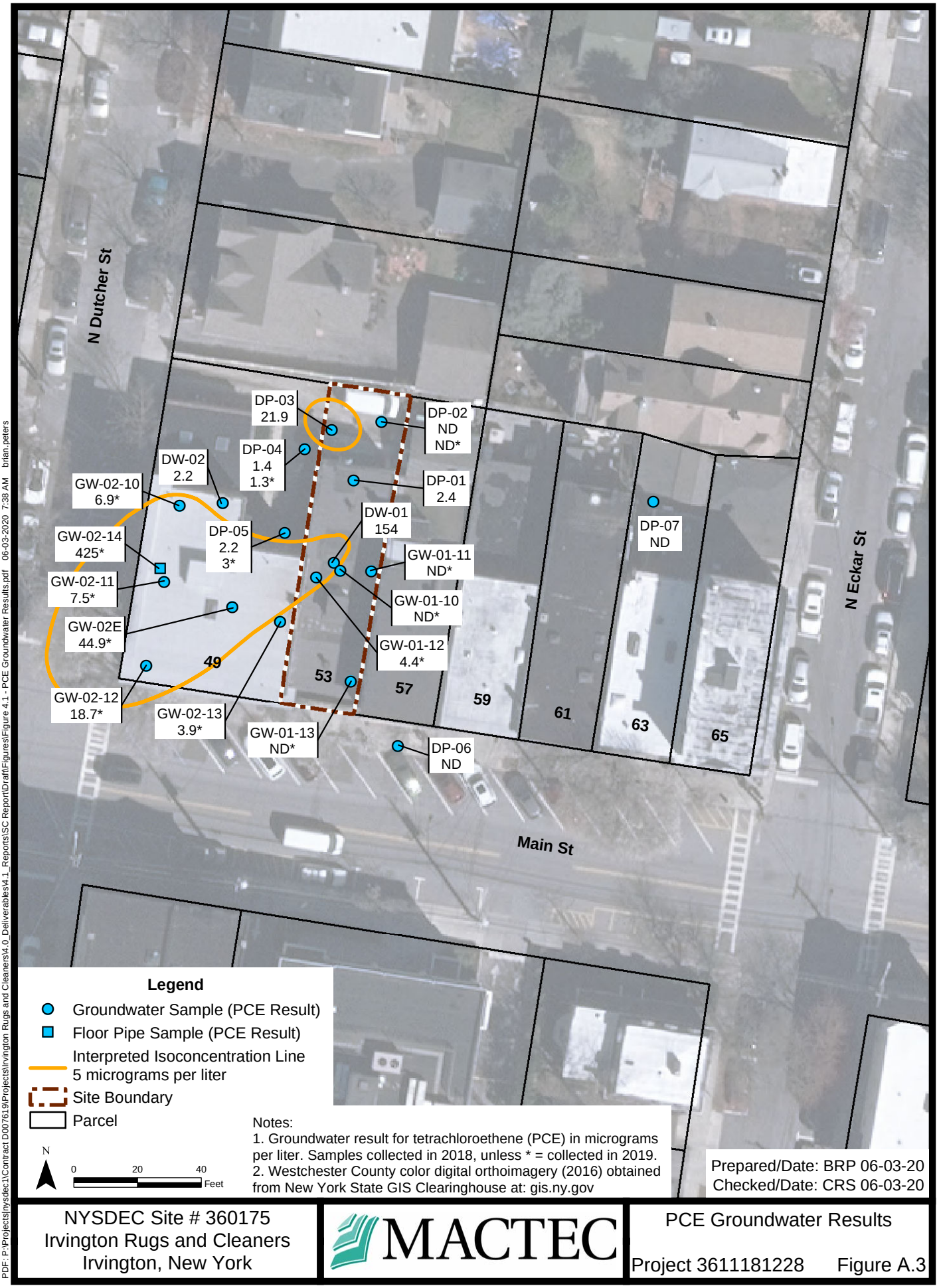
NYSDEC Site # 360175
Irvington Rugs and Cleaners
Irvington, New York

MACTEC

Groundwater Contours

Project 3611181228 Figure A.2

Document: P:\Projects\nysdec1\Contract D007619\Projects\Irvington Rugs and Cleaners\4.0_Deliverables\4.5_Databases\GIS\MapDocuments\SC_Report_8.5x11P.mxd
PDF: P:\Projects\nysdec1\Contract D007619\Projects\Irvington Rugs and Cleaners\4.0_Deliverables\4.1_Reports\SC Report\Draft\Figures\Figure 3.1 - Groundwater Contours.pdf 05/20/2019 1:29 PM brian.peters




Notes:
1. Groundwater result for tetrachloroethene (PCE) in micrograms per liter. Samples collected in 2018, unless * = collected in 2019.
2. Westchester County color digital orthoimagery (2016) obtained from New York State GIS Clearinghouse at: gis.ny.gov

Prepared/Date: BRP 06-03-20
Checked/Date: CRS 06-03-20

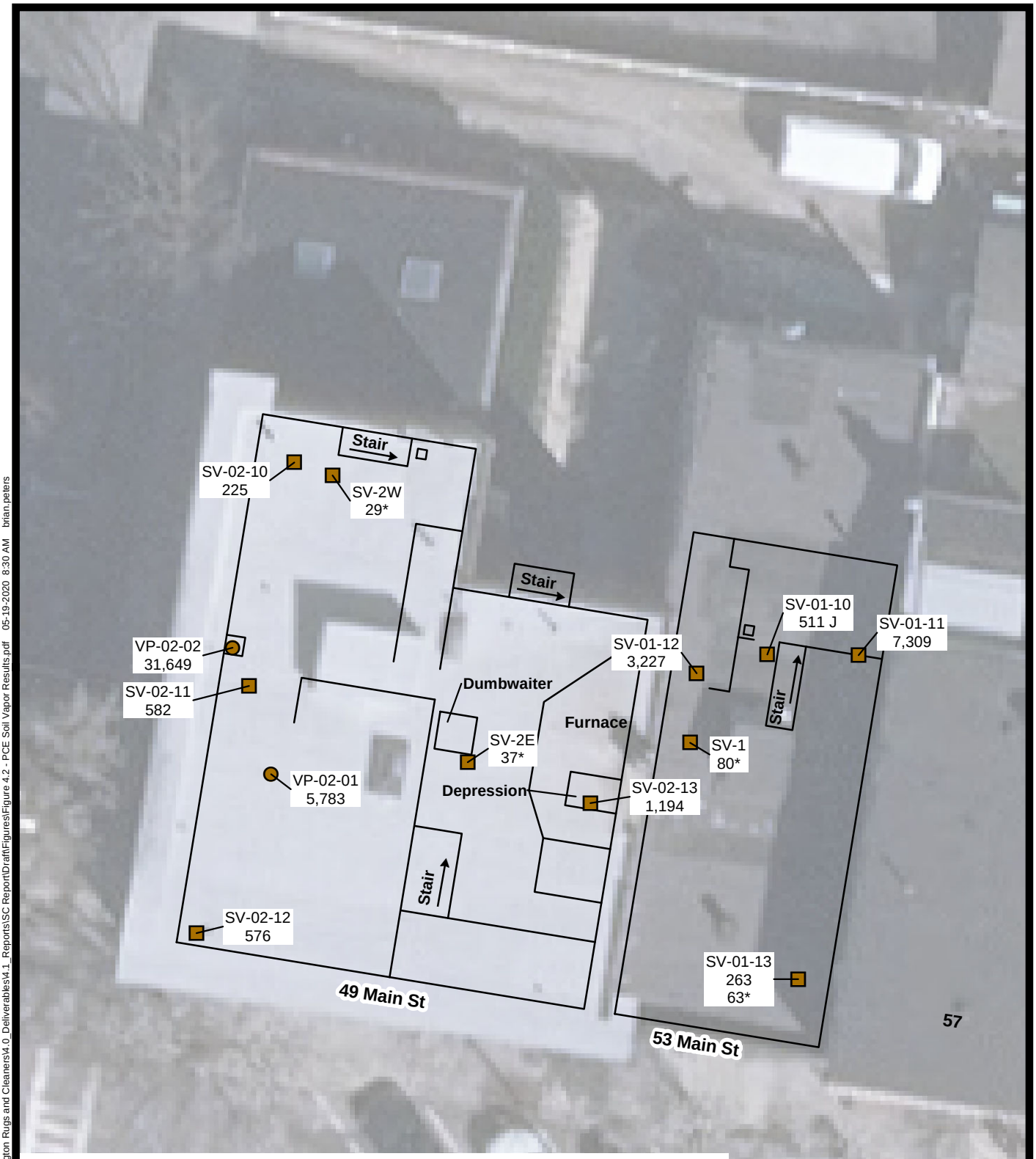
NYSDEC Site # 360175
Irvington Rugs and Cleaners
Irvington, New York

MACTEC

PCE Groundwater Results

Project 3611181228 Figure A.3

Document: P:\Projects\nysdec1\Contract D007619\Projects\Irvington Rugs and Cleaners\v4.0_Deliverables\v4.5_Databases\GIS\MapDocuments\GW_PCE_8.5x11P.mxd
PDF: P:\Projects\nysdec1\Contract D007619\Projects\Irvington Rugs and Cleaners\v4.0_Deliverables\v4.1_Reports\SC Report\Draft\Figures\Figure 4.1 - PCE Groundwater Results.pdf 06-03-2020 7:38 AM brian.peters




**Legend**

- IA/VP Location
- SV Location

N

0 5 10 15 Feet

Notes:
1. Number next to location represents concentrations of Tetrachloroethene in micrograms per cubic meter
2. Results are HAPSITE field screening results, unless *
3. * = fixed laboratory result
4. Samples collected in November 2019, except SV-1, SV-2E and SV-2W collected in February 2019.
5. Westchester County color digital orthoimagery (2016) obtained from New York State GIS Clearinghouse at: gis.ny.gov

Prepared/Date: BRP 05-19-20
Checked/Date: CRS 05-19-20

NYSDEC Site # 360175
Irvington Rugs and Cleaners
Irvington, New York

MACTEC

PCE Soil Vapor Results

Project 3611181228 Figure A.4

Document: P:\Projects\nysdec1\Contract D007619\Projects\Irvington Rugs and Cleaners\v4.0_Deliverables\v4.5_Databases\GIS\MapDocuments\Soil_PCE_8.5x11P.mxd
PDF: P:\Projects\nysdec1\Contract D007619\Projects\Irvington Rugs and Cleaners\v4.0_Deliverables\v4.1_Reports\SC Report\Draft\Figures\Figure 4.2 - PCE Soil Vapor Results.pdf 05-19-2020 8:30 AM brian.peters

**Table A.1: Soil VOC Results**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | DP-01 | | DP-01 | | DP-02 | DP-03 | | DP-04 | | DP-05 | |
| | | | **Sample Depth (ft bgs)** | 3 | | 3 | | 1 | 3 | | 6 | | 7 | |
| | | | **Sample Date** | 12/20/2018 | | 12/20/2018 | | 12/19/2018 | 12/19/2018 | | 12/18/2018 | | 12/18/2018 | |
| | | | **Sample ID** | 360175-DP001003 | | 360175-DP001003D | | 360175-DP002001 | 360175-DP003003 | | 360175-DP004006 | | 360175-DP005007 | |
| | | | **QC Code** | FS | | FD | | FS | FS | | FS | | FS | |
| **Parameter** | **UNR** | **RES** | **COM** | Result | Qualifier | Result | Qualifier | Result Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Volatile Organic Compounds (VOCs)** (mg/kg) | | | | | | | | | | | | | | |
| 1,2,4-Trimethylbenzene | 3.6 | 47 | 190 | 0.143 | U | 0.152 | U | 0.112 U | 0.115 | U | 0.157 | U | 0.121 | U |
| 1,3,5-Trimethylbenzene | 8.4 | 47 | 190 | 0.143 | U | 0.152 | U | 0.112 U | 0.115 | U | 0.157 | U | 0.121 | U |
| Acetone | 0.05 | 100 | 500 | 0.143 | U | 0.152 | U | 0.112 U | 0.115 | U | 0.157 | U | 0.121 | U |
| n-Butylbenzene | 12 | 100 | 500 | 0.143 | U | 0.152 | U | 0.112 U | 0.115 | U | 0.157 | U | 0.121 | U |
| Naphthalene | 12 | 100 | 500 | 0.143 | UJ | 0.152 | UJ | 0.112 UJ | 0.115 | UJ | 0.157 | UJ | 0.121 | UJ |
| Tetrachloroethene | 1.3 | 5.5 | 150 | 0.143 | UJ | **0.17** | J | 0.112 U | **0.121** | | **0.0792** | J | 0.121 | U |

Notes:

Only detected compounds shown: detections in bold

Blank results indicate parameter not analyzed; ND= not detected

Samples analyzed for: VOCs by USEPA Method 8260

ft bgs = feet below ground surface (or below slab)

mg/kg = milligrams per kilogram

Qualifier: U = not detected; J = estimated

QC Code: FS = field sample; FD = field duplicate

Regulatory criteria from NYCRR-Part 375 Soil Cleanup Objectives:

UNR = Unrestricted Use

RES = Residential Use

COM = Commercial Use

NL = not listed/no criteria

**Table A.1: Soil VOC Results**

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **Location** | DP-05 | | DP-06 | | DP-07 | | HA-01-10 | | HA-01-10 | | HA-01-12 | |
| | | | | **Sample Depth (ft bgs)** | 16 | | 5 | | 5 | | 2 | | 2 | | 2 | |
| | | | | **Sample Date** | 12/18/2018 | | 12/19/2018 | | 1/7/2019 | | 11/12/2019 | | 11/12/2019 | | 11/12/2019 | |
| | | | | **Sample ID** | 360175-DP005016 | | 360175-DP006005 | | 360175-DP007005 | | 360175-HA001-10002 | | 360175-HA001-10002D | | 360175-HA001-12002 | |
| | | | | **QC Code** | FS | | FS | | FS | | FS | | FD | | FS | |
| **Parameter** | **UNR** | **RES** | **COM** | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Volatile Organic Compounds (VOCs)** (mg/kg) | | | | | | | | | | | | | | | | |
| 1,2,4-Trimethylbenzene | 3.6 | 47 | 190 | | 0.106 | U | 0.104 | U | 0.248 | U | 0.121 | U | 0.111 | U | **0.144** | |
| 1,3,5-Trimethylbenzene | 8.4 | 47 | 190 | | 0.106 | U | 0.104 | U | 0.248 | U | 0.121 | U | 0.111 | U | **0.114** | J |
| Acetone | 0.05 | 100 | 500 | | 0.106 | U | 0.104 | U | 0.248 | U | 0.121 | UJ | 0.111 | UJ | **0.116** | J+ |
| n-Butylbenzene | 12 | 100 | 500 | | **0.0628** | J | 0.104 | U | 0.248 | U | 0.121 | U | 0.111 | U | 0.118 | U |
| Naphthalene | 12 | 100 | 500 | | **0.0918** | J | 0.104 | UJ | 0.248 | U | 0.121 | U | 0.111 | U | 0.118 | U |
| Tetrachloroethene | 1.3 | 5.5 | 150 | | 0.106 | U | 0.104 | U | 0.248 | U | 0.121 | U | 0.111 | U | **0.0817** | J |

Notes:

Only detected compounds shown: detections in bold

Blank results indicate parameter not analyzed; ND= not detected

Samples analyzed for: VOCs by USEPA Method 8260

ft bgs = feet below ground surface (or below slab)

mg/kg = milligrams per kilogram

Qualifier: U = not detected; J = estimated

QC Code: FS = field sample; FD = field duplicate

Regulatory criteria from NYCRR-Part 375 Soil Cleanup Objectives:

UNR = Unrestricted Use

RES = Residential Use

COM = Commercial Use

NL = not listed/no criteria

Table A.2: Groundwater VOC Results

| | Location | DP-01 | | DP-01 | | DP-02 | | DP-02 | | DP-03 | | DP-04 | | DP-04 | | DP-05 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sample Date | 12/20/2018 | | 12/20/2018 | | 12/20/2018 | | 11/12/2019 | | 12/20/2018 | | 12/19/2018 | | 11/13/2019 | | 12/19/2018 | |
| | Sample ID | 360175-GW001012 | | 360175-GW001012D | | 360175-GW002012 | | 360175-GW102008 | | 360175-GW003013 | | 360175-GW004015 | | 360175-GW104010 | | 360175-GW005015 | |
| | Sample Depth (ft bgs) | 12 | | 12 | | 12 | | 08 | | 13 | | 15 | | 10 | | 15 | |
| | QC Code | FS | | FD | | FS | | FS | | FS | | FS | | FS | | FS | |
| **Parameter** | **Criteria** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Volatile Organic Compounds (VOCs)** | | | | | | | | | | | | | | | | | |
| Acetone | 50* | 5 | U | **2.9** | J | 5 | U | 5 | U | **1.7** | J | 5 | U | 5 | U | **2.1** | J |
| Chloroform | 7 | **1.1** | | **1.1** | | 1 | U | 1 | U | **1.7** | | 1 | U | 1 | U | 1 | U |
| cis-1,2-Dichloroethene | 5 | 1 | U | 1 | U | 1 | U | 1 | U | **6.4** | | **1.8** | | **1.8** | | **2.1** | |
| Tetrachloroethene | 5 | **2.4** | | **2.5** | | 1 | U | 1 | U | **21.9** | | **1.4** | | **1.3** | | **2.2** | |
| Trichloroethene | 5 | 1 | U | 1 | U | 1 | U | 1 | U | **6.2** | | **1.7** | | **1.3** | | **1.4** | |

**Notes:**

Results reported in micrograms per liter (µg/L)

Only detected compounds shown;

Samples analyzed by EPA Method SW8260B

ft bgs = feet below ground surface

QC Code: FS = Field Sample; FD = Field Sample

Qualifiers:

U = Not detected greater than the reporting limit

J = Estimated value

values from Technical and Operational Guidance Series (TOGS) 1.1.1, "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" (NYSDEC, 1998).

* = Guidance Value

NL = Not Listed

**Bold** = Compound detected in sample

**Highlighted results exceed criteria**

Table A.2: Groundwater VOC Results

| | Location | DP-05 | | DP-05 | | DP-06 | | DP-07 | | GW-01-10 | | GW-01-11 | | GW-01-12 | | GW-01-13 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sample Date | 11/13/2019 | | 11/13/2019 | | 12/20/2018 | | 1/7/2019 | | 11/12/2019 | | 11/12/2019 | | 11/13/2019 | | 11/12/2019 | |
| | Sample ID | 360175-GW105010 | | 360175-GW105010 D | | 360175-GW006018 | | 360175-GW007015 | | 360175-GW001-1000 | | 360175-GW001-1100 | | 360175-GW001-1200 | | 360175-GW001-1300 | |
| | Sample Depth (ft bgs) | 10 | | 10 | | 18 | | 15 | | 3 | | 1 | | 4 | | 1 | |
| | QC Code | FS | | FD | | FS | | FS | | FS | | FS | | FS | | FS | |
| **Parameter** | **Criteria** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Volatile Organic Compounds (VOCs)** | | | | | | | | | | | | | | | | | |
| Acetone | 50* | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Chloroform | 7 | 1 | U | 1 | U | **2.5** | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| cis-1,2-Dichloroethene | 5 | **1** | | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Tetrachloroethene | 5 | **3** | | **2.9** | | 1 | U | 1 | UJ | 1 | U | 1 | U | **4.4** | | 1 | U |
| Trichloroethene | 5 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |

**Notes:**

Results reported in micrograms per liter (µg/L)

Only detected compounds shown;

Samples analyzed by EPA Method SW8260B

ft bgs = feet below ground surface

QC Code: FS = Field Sample; FD = Field Sample

Qualifiers:

U = Not detected greater than the reporting lim

J = Estimated value

values from Technical and Operational Guidance Series (TOGS) 1.1.1, "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" (NYSDEC, 1998).

* = Guidance Value

NL = Not Listed

**Bold** = Compound detected in sample

**Highlighted results exceed criteria**

Table A.2: Groundwater VOC Results

| | Location | GW-02E | | GW-02-10 | | GW-02-11 | | GW-02-12 | | GW-02-13 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sample Date | 2/27/2019 | | 11/13/2019 | | 11/13/2019 | | 11/13/2019 | | 11/13/2019 | |
| | Sample ID | 360175-GW002-E | | 360175-GW002-10003 | | 360175-GW002-11003 | | 360175-GW002-12003 | | 360175-GW002-13002 | |
| | Sample Depth (ft bgs) | 1 | | 03 | | 03 | | 03 | | 02 | |
| | QC Code | FS | | FS | | FS | | FS | | FS | |
| **Parameter** | **Criteria** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Volatile Organic Compounds (VOCs)** | | | | | | | | | | | |
| Acetone | 50* | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Chloroform | 7 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| cis-1,2-Dichloroethene | 5 | 1 | U | **13.4** | | 1 | U | 1 | U | 1 | U |
| Tetrachloroethene | 5 | **44.9** | | **6.9** | | **7.5** | | **18.7** | | **3.9** | |
| Trichloroethene | 5 | 1 | U | **15.9** | | 1 | U | 1 | U | 1 | U |

**Notes:**
Results reported in micrograms per liter (µg/L)
Only detected compounds shown;
Samples analyzed by EPA Method SW8260B
ft bgs = feet below ground surface
QC Code: FS = Field Sample; FD = Field Sample
Qualifiers:
U = Not detected greater than the reporting lim
J = Estimated value
values from Technical and Operational Guidance Series (TOGS) 1.1.1, "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" (NYSDEC, 1998).
* = Guidance Value
NL = Not Listed
**Bold** = Compound detected in sample
**Highlighted results exceed criteria**

**Table A.3: Emerging Contaminants in Groundwater**

| | | Location Area | DP-01 On-Site | | DP-01 On-Site | | DP-03 On-Site | | DP-04 Off-Site | | DP-07 Background | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Date | 12/20/2018 | | 12/20/2018 | | 12/20/2018 | | 12/19/2018 | | 1/7/2019 | |
| | | Sample ID | 360175-GW001012 | | 360175-GW001012D | | 360175-GW003013 | | 360175-GW004015 | | 360175-GW007015 | |
| | | Qc Code | FS | | FD | | FS | | FS | | FS | |
| **Parameter** | **EPA*** | **MCL**** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Dioxane by USEPA Method 8270 SIM** (ug/L) | | | | | | | | | | | | |
| 1,4-Dioxane | 1 | 1 | **0.099** | J | **0.083** | J | **0.12** | J | 0.25 | UJ | 0.25 | UJ |
| **Per-and Poly-fluoroalkynated Substances (PFAS) by USEPA Modified Method 537** (ng/L) | | | | | | | | | | | | |
| 6:2 Fluorotelomer sulfonate (6:2 FTS) | NL | NL | 2 | U | 2.1 | U | 2.2 | U | 2.4 | U | 1.7 | U |
| 8:2 Fluorotelomer sulfonate (8:2 FTS) | NL | NL | 2 | U | 2.1 | U | 2.2 | U | 2.4 | U | 1.7 | U |
| N-ethyl perfluorooctanesulfonamidoacetic acid (N EtFOSAA) | NL | NL | 1.9 | U | 2 | U | 2.1 | U | 2.2 | U | 1.6 | U |
| N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | NL | NL | 3.2 | U | 3.3 | U | 3.4 | U | 3.7 | U | 2.7 | U |
| Perfluorobutanesulfonic acid (PFBS) | NL | NL | **6.4** | | **6.7** | | **29** | | **10** | | **7.2** | |
| Perfluorobutanoic acid (PFBA) | NL | NL | **2** | | **2.3** | | **26** | | **10** | | **6.5** | |
| Perfluorodecanesulfonic acid (PFDS) | NL | NL | 0.33 | U | 0.34 | U | 0.35 | U | 0.38 | U | 0.27 | U |
| Perfluorodecanoic acid (PFDA) | NL | NL | **2.3** | | **2.3** | | **5.7** | | **3** | | 0.27 | U |
| Perfluorododecanoic acid (PFDoA) | NL | NL | 0.56 | U | 0.58 | U | 0.59 | U | 0.65 | U | 0.47 | U |
| Perfluoroheptanesulfonic acid (PFHpS) | NL | NL | **0.43** | J | **0.51** | J | **5.6** | | **0.86** | J | **0.18** | J |
| Perfluoroheptanoic acid (PFHpA) | NL | NL | **2.8** | | **2.9** | | **43** | | **10** | | **5.6** | |
| Perfluorohexanesulfonic acid (PFHxS) | NL | NL | **2.8** | | **2.7** | | **28** | | **5.5** | | **4.7** | |
| Perfluorohexanoic acid (PFHxA) | NL | NL | **2.5** | | **2.2** | | **65** | | **13** | | **6.5** | |
| Perfluorononanoic acid (PFNA) | NL | NL | **15** | | **15** | | **42** | | **15** | | **0.54** | J |
| Perfluorooctanessulfonic acid (PFOS) | 70* | 10 | **45** | | **48** | | **480** | | **99** | J | **6.1** | |
| Perfluorooctanoic acid (PFOA) | 70* | 10 | **11** | | **11** | | **95** | | **28** | | **18** | |
| Perfluoropentanoic acid (PFPeA) | NL | NL | **2** | | **1.7** | J | **87** | | **15** | | **6.7** | |
| Perfluorotetradecanoic acid (PFTeDA) | NL | NL | 0.3 | U | 0.3 | U | 0.31 | U | **0.41** | J | 0.25 | U |
| Perfluorotridecanoic acid (PFTrDA) | NL | NL | 1.3 | U | 1.4 | U | 1.4 | U | 1.5 | U | 1.1 | U |
| Perfluoroundecanoic acid (PFUnDA) | NL | NL | 1.1 | U | 1.2 | U | 1.2 | U | 1.3 | U | 0.94 | U |
| Perfluroroctanesulfonamide (FOSA) | NL | NL | 0.36 | U | 0.37 | U | **2.1** | J | 0.41 | U | 0.3 | U |

**Notes:**

ug/L = micrograms per liter

ng/L = nanograms per liter

Qualifier: U = not detected; J = estimated

QC Code: FS = field sample; FD = field duplicate

United States Environmental Protection Agency (EPA) Health Advisory Limit: for PFOS and PFOA, the limit of 70 ng/L is for the combined concentration.

MCL** = New York State Groundwater Quality Council proposed maximum contaminant level.

NL = not listed/no criteria

## Table A.4: HAPSITE Results

| | | | | **Analyte** | Tetrachloroethene | | Trichloroethene | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | **Units** | ug/m3 | | ug/m3 | | |
| **Area** | **Loc ID** | **Matrix** | **Date Sampled** | **QC Type** | Result | Qualifier | Result | Qualifier | **Comments** |
| 49 Main Street Indoor Air | IA-02-01 | IA | 11/12/2019 | FS | 5.6 | | 0.54 | U | Basement |
| | IA-02-02 | IA | 11/12/2019 | FS | 4.4 | | 0.54 | U | Basement |
| | IA-02-03 | IA | 11/12/2019 | FS | 16 | | 0.54 | U | Basement |
| | IA-02-04 | IA | 11/12/2019 09:09 | FS | 26 | | 0.54 | U | Basement |
| | IA-02-04 | IA | 11/12/2019 16:26 | FS | 36 | | 1 | | Basement |
| | IA-02-05 | IA | 11/12/2019 | FS | 13 | | 0.54 | U | Basement |
| | IA-02-06 | IA | 11/12/2019 | FS | 17 | | 0.54 | U | Basement |
| | IA-02-07 | IA | 11/12/2019 | FS | 25 | | 0.66 | | Basement |
| | IA-02-07 DUP | IA | 11/12/2019 | FD | 27 | | 0.89 | | Basement |
| | IA-02-08 | IA | 11/12/2019 | FS | 33 | | 0.78 | | Basement |
| | IA-02-09 | IA | 11/12/2019 | FS | 71 | | 1.3 | | Basement |
| | IA-02-09 | IA | 11/13/2019 | FS | 72 | | 1.2 | | Basement |
| | IA-02-10 | IA | 11/12/2019 | FS | 74 | | 1.4 | | Basement |
| | IA-02-11 | IA | 11/12/2019 | FS | 49 | | 1.1 | | First Floor |
| | IA-02-12 | IA | 11/12/2019 | FS | 42 | | 0.97 | | Basement |
| | IA-02-13 | IA | 11/12/2019 | FS | 33 | | 0.77 | | Basement |
| | IA-02-14 | IA | 11/12/2019 | FS | 43 | | 0.94 | | Basement |
| | IA-02-15 | IA | 11/13/2019 | FS | 10 | | 0.54 | U | First Floor |
| | IA-02-16 | IA | 11/13/2019 | FS | 14 | | 0.54 | U | Second Floor |
| | IA-02-17 | IA | 11/13/2019 | FS | 11 | | 0.54 | U | Third Floor |
| 49 Main Street Sub-Slab | SV-02-10 | SS | 11/13/2019 | FS | 225 | | 512 | | |
| | SV-02-11 | SS | 11/13/2019 | FS | 582 | | 220 | | |
| | SV-02-12 | SS | 11/13/2019 | FS | 576 | | 58 | | |
| | SV-02-13 | SS | 11/13/2019 | FS | 1194 | | 54 | U | |
| 49 Main Street Other Location | VP-02-01 | VP | 11/12/2019 | FS | 5783 | | 537 | U | Sample taken from flux chamber over crack in the floor in southern portion of the basement |
| | VP-02-02 | VP | 11/12/2019 | FS | 31649 | | 575 | | Sample taken from flux chamber over floor drain along the western wall |
| | VP-02-03 | VP | 11/12/2019 | FS | 58 | | 1.2 | | Sample collected at the base of the dumbwaiter shaft |
| | VP-02-04 | VP | 11/12/2019 | FS | 38 | | 0.82 | | Sample collected at the top of the dumbwaiter shaft on the 3rd floor |
| | VP-02-05 | VP | 11/12/2019 | FS | 79 | | 1.4 | | Sample taken inside 'coal chute' in the south wall |
| | VP-02-06 | VP | 11/12/2019 | FS | 19 | | 5.4 | U | sample taken from flux chamber along eastern wall next to chimney |
| | VP-02-07 | VP | 11/13/2019 | FS | 2.1 | | 0.54 | U | Sample taken inside crawl space under northern portion of the building |
| 53 Main Street Indoor Air | IA-01-01 | IA | 11/11/2019 | FS | 8 | | 0.54 | U | Basement |
| | IA-01-02 | IA | 11/11/2019 | FS | 15 | | 0.54 | U | Basement |
| | IA-01-03 | IA | 11/11/2019 | FS | 10 | | 0.54 | U | Basement |
| | IA-01-04 | IA | 11/11/2019 | FS | 13 | | 0.54 | U | Basement |
| | IA-01-05 | IA | 11/11/2019 | FS | 10 | | 0.54 | U | Basement |
| | IA-01-06 | IA | 11/11/2019 | FS | 10 | | 0.54 | U | Basement |
| | IA-01-07 | IA | 11/11/2019 | FS | 6.1 | | 0.54 | U | Basement |
| | IA-01-08 | IA | 11/11/2019 | FS | 9 | | 0.54 | U | Basement |
| | IA-01-08 DUP | IA | 11/11/2019 | LD | 9.3 | | 0.54 | U | Basement |
| | IA-01-09 | IA | 11/11/2019 | FS | 3.1 | | 0.54 | U | First Floor (north of top of stairs-center of building) |
| | IA-01-10 | IA | 11/11/2019 | FS | 2.4 | | 0.54 | U | First Floor (in storage rack area behind/north of front desk) |
| | IA-01-11 | IA | 11/13/2019 | FS | 8 | | 0.54 | U | First Floor (northeast corner behind washers) |
| 53 Main Street Soil Vapor | SV-01-10 | SS | 11/12/2019 | FS | 511 | J | 54 | U | |
| | SV-01-10 DUP | SS | 11/12/2019 | FD | 252 | J | 54 | U | |
| | SV-01-11 | SS | 11/12/2019 | FS | 7309 | | 113 | | |
| | SV-01-12 | SS | 11/12/2019 | FS | 3227 | | 305 | | |
| | SV-01-13 | SS | 11/12/2019 | FS | 263 | | 54 | U | |
| 53 Main Street Other Location | VP-01-01 | VP | 11/11/2019 | FS | 0.73 | | 0.54 | U | Sample taken at exhaust of a vent blowing air into the basement from the south side of the building |
| | VP-01-02 | VP | 11/11/2019 | FS | 0.68 | U | 0.54 | U | Sample taken inside 1" black tube connected to sewer |
| | VP-01-03 | VP | 11/11/2019 | FS | 22 | | 0.54 | U | Sample collected from air adjacent to rugs laying on the southeast corner of the basement |
| | VP-01-04 | VP | 11/11/2019 | FS | 1.7 | | 0.54 | U | Sample collected from air adjacent to rugs laying on the southeast corner of the basement |
| | VP-01-05 | VP | 11/11/2019 | FS | 15 | | 0.54 | U | Sample taken from inside hoses used to clean carpets |
| | VP-01-06 | VP | 11/11/2019 | FS | 16 | | 0.54 | U | Sample collected from air inside rugs laying on the southeast corner of the basement |
| | VP-01-07 | VP | 11/11/2019 | FS | 16 | | 0.54 | U | Sample collected from under flux chamber placed on the floor of the basement in the southeast corner |
| | VP-01-08 | VP | 11/11/2019 | FS | 4.4 | | 0.54 | U | Sample collected from under flux chamber placed on the1st floor behind washing machines in the northeast corner |
| | VP-01-09 | VP | 11/11/2019 | FS | 15 | | 0.54 | U | Sample collected from under flux chamber placed on the floor of the basement on the north end outside boiler room |
| 63 Main Street | SV-03-10 | SS | 11/13/2019 | FS | 44 | | 5.4 | U | |

Notes:
ug/m3 = micrograms per cubic meter
Matrix: IA = indoor air; SS = soil vapor; VP = potential pathway/source
QC Type: FS = Field Sample; FD = Field Duplicate
Qualifiery: U = not detected above reporting limit

MICROBAC®

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# CERTIFICATE OF ANALYSIS

Z9K0083

**John Wood Group, Plc COmpany**

Charles Staples
511 Congress Street, Ste. 200
Portland, ME 04101

**Project Name: DHc Testing**

Project / PO Number: N/A
Received: 11/14/2019
Reported: 11/21/2019

## Analytical Testing Parameters

**Client Sample ID:** 360175-GW001-12004
**Sample Matrix:** Water
**Lab Sample ID:** Z9K0083-01

Location GW-01-12

**Collection Date:** 11/13/2019 8:10

| Molecular - QPCR | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **QPCR** | | | | | | | | |
| Dehalobacter spp. (DHb) | **<100** | | gene copies/L | 1 | | 11/14/19 1109 | 11/21/19 1057 | RWB |
| Dehalococcoides spp. (DHc) | **575000** | | gene copies/L | 1 | | 11/14/19 1109 | 11/19/19 1315 | RWB |
| Trichloroethene Reductase (tceA) | **<100** | | gene copies/L | 1 | | 11/14/19 1109 | 11/19/19 1315 | RWB |
| Vinyl Chloride Reductase (bvcA) | **<100** | | gene copies/L | 1 | | 11/14/19 1109 | 11/19/19 1315 | RWB |
| Vinyl Chloride Reductase (vcrA) | **<100** | | gene copies/L | 1 | | 11/14/19 1109 | 11/19/19 1315 | RWB |

**Client Sample ID:** 360175-GW105010
**Sample Matrix:** Water
**Lab Sample ID:** Z9K0083-02

Location DP-05

**Collection Date:** 11/13/2019 14:41

| Molecular - QPCR | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **QPCR** | | | | | | | | |
| Dehalobacter spp. (DHb) | **80000** | | gene copies/L | 1 | | 11/14/19 1109 | 11/21/19 1057 | RWB |
| Dehalococcoides spp. (DHc) | **35000** | | gene copies/L | 1 | | 11/14/19 1109 | 11/19/19 1315 | RWB |
| Trichloroethene Reductase (tceA) | **<100** | | gene copies/L | 1 | | 11/14/19 1109 | 11/19/19 1315 | RWB |
| Vinyl Chloride Reductase (bvcA) | **<100** | | gene copies/L | 1 | | 11/14/19 1109 | 11/19/19 1315 | RWB |
| Vinyl Chloride Reductase (vcrA) | **<100** | | gene copies/L | 1 | | 11/14/19 1109 | 11/19/19 1315 | RWB |

Notes from Irvington Site Characterization:
The presence of dehalococcoides (*DHC*) ≥ 10^4 cells/milliliter has been proposed as a screening criterion indicating high possibility of fully reductive dechlorination (See Microbial Insights DHC Interpretation Page included below). The three samples collected (from locations GW-01-12, DP-04, and DP-05) had populations ranging from 10^1 to 10^2 cells/milliliter, which are considered to have moderate potential for complete reductive dechlorination of TCE to ethene.

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# CERTIFICATE OF ANALYSIS

## Z9K0083

**Client Sample ID:** 360175-GW104010
**Sample Matrix:** Water
**Lab Sample ID:** Z9K0083-03

Location DP-04

**Collection Date:** 11/13/2019 16:16

| Molecular - QPCR | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **QPCR** | | | | | | | | |
| Dehalobacter spp. (DHb) | **4000** | | gene copies/L | 1 | | 11/14/19 1109 | 11/21/19 1057 | RWB |
| Dehalococcoides spp. (DHc) | **206000** | | gene copies/L | 1 | | 11/14/19 1109 | 11/19/19 1315 | RWB |
| Trichloroethene Reductase (tceA) | **<100** | | gene copies/L | 1 | | 11/14/19 1109 | 11/19/19 1315 | RWB |
| Vinyl Chloride Reductase (bvcA) | **<100** | | gene copies/L | 1 | | 11/14/19 1109 | 11/19/19 1315 | RWB |
| Vinyl Chloride Reductase (vcrA) | **2350** | | gene copies/L | 1 | | 11/14/19 1109 | 11/19/19 1315 | RWB |

**Definitions**

**Report Comments**

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.*

**Reviewed and Approved By:**



Maraea Clark
Project Manager
Reported: 11/21/2019 15:12

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# CHAIN OF CUSTODY

Page 1 of 1

Z9K0083-01 Sampled: 11/13/2019 08:10
John Wood Group, Plc Company

Project ID: 360118/228
Permit #:
If drinking water, State Reported?: ☐ Yes ☐ No

Report To: Chuck Staples
Address: 511 Congress St Suite 200
Portland, ME 04101
Phone: 207-775-5401 Fax
E-mail: charles.staples@woodplc.com

Invoice To: Same
Address:
P.O. #:
Quote #:

(1) Sample Matrix codes
AR = Air, DW = Dr. Water, FO = Food, FT = Filter, GW = Gr. Water, OL = Oil, PC = Paint Chip, SB = Swab, SD = Soil/Solid, SL = Sludge, SW = Storm Water, WP = Wipe, WW = Waste Water, FB = Field Blank, TB = Trip Blank

(2) Sample Type codes
G = Grab, C = Composite

| Sample Identification | Sample Date | Sample Time | (1) Sample Matrix | (2) Sample Type | # of Containers | Dechlorinating Microbes | Please Mark Testing Required Below (X) |
|---|---|---|---|---|---|---|---|
| 360175-GW001-12004 | 11/13/19 | 0810 | GW | G | | X | |
| 360175-GW105010 | 11/13/19 | 1441 | GW | G | | X | |
| 360175-GW104010 | 11/13/19 | 1616 | GW | G | | X | |

FOR LAB CHECK-IN ONLY
Temp Rec'd: 0.5 °C
Prop. Preserved: ___ Y ___ N
Customer #:
Project: Product Analysis
Proj. Mgr:

*Special instructions / notes:*
call 860-204-1937 w/ questions.

Samples collected by [please print]:
Amberlee Clark
Alex Howe

PRIORITY (addl. fee)
☐ Same Day (+200%)
☐ Next Day (+100%)
☐ 2 Day (+50%)
☐ 3 Day (+25%)
☐ 4 Day (+10%)

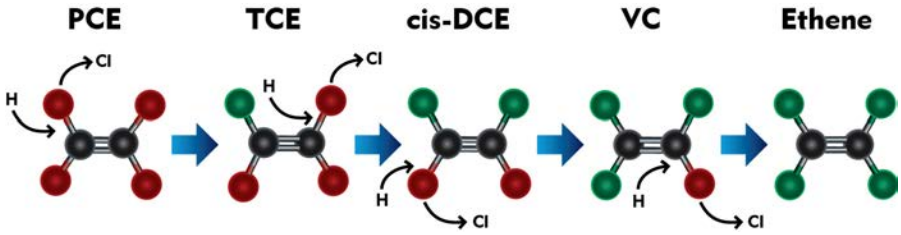
All rush priority orders require prior approval.

| | Relinquished By: | Date: | Time: | Received By: |
|---|---|---|---|---|
| 1 | | 11/13/19 | 1700 | |
| 2 | FedEx | 11-14-19 | 1000 | MNC |
| 3 | | | | |

# DHC Interpretation

### *Dehalococcoides* 16S rRNA gene (qDHC)

Under anaerobic conditions, tetrachloroethene (PCE) and trichloroethene (TCE) can undergo sequential reductive dechlorination through the daughter products *cis*-dichloroethene (*cis*-DCE) and vinyl chloride to nontoxic ethene (1,2).




While a number of bacterial cultures capable of utilizing PCE and TCE as growth supporting electron acceptors have been isolated (3-7), *Dehalococcoides* spp. may be the most important because they are the only bacterial group that has been isolated to date which is capable of complete reductive dechlorination of PCE to ethene (8). In fact, the presence of *Dehalococcoides* spp. has been associated with complete dechlorination to ethene at sites across North America and Europe (9).

| Status | *Dehalococcoides spp.* | Observation |
|---|---|---|
|  | **≥ $10^4$** (cells/mL) | Lu et al. proposed that a concentration of 1 x $10^4$ DHC cells/mL could be used as a screening criterion to identify sites where reductive dechlorination will yield a generally useful biodegradation rate (10).<br><br>Similarly, in an internal study conducted with nearly 1000 groundwater samples obtained from sites across the US, ethene production was observed in approximately 80% of samples in which CENSUS® qDHC results were greater than or equal to $10^4$ DHC cells/mL. |
|  | **$10^1$ to < $10^4$** (cells/mL) | When vinyl chloride reductase genes (See DHC functional genes discussion below) are also detected, complete reductive dechlorination of PCE and TCE to ethene may still occur even with moderate DHC concentrations.<br><br>When the DHC population is below the $10^4$ cells/mL criterion proposed by Lu et al. (10), project managers should carefully consider other site-specific data to determine whether subsurface conditions may be limiting reductive dechlorination. For example, the addition of an electron donor may be able to stimulate DHC growth and enhance anaerobic bioremediation. |
|  | **< $10^1$** (cells/mL) | DHC concentrations are low suggesting that complete reductive dechlorination of PCE and TCE to ethene is unlikely to occur under existing conditions. Enhanced anaerobic bioremediation options (biostimulation or bioaugmentation) may need to be considered. |



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## DHC Functional Genes (*tce*A, *bvc*A, *vcr*A)

A "stall" where daughter products *cis*-DCE and vinyl chloride accumulate can occur at PCE- and TCE-impacted sites especially under MNA conditions. The accumulation of vinyl chloride, generally considered more carcinogenic than the parent compounds, is particularly problematic. Although elevated *Dehalococcoides* concentrations correspond to ethene production in numerous studies, the range of chlorinated ethenes metabolized and cometabolized varies among species and strains within the *Dehalococcoides* genus. For example, *Dehalococcoides ethenogenes* str. 195 metabolizes PCE, TCE, and *cis*-DCE and cometabolizes vinyl chloride (8) to produce ethene. Conversely, *Dehalococcoides* sp. CBDB1 utilizes PCE and TCE but does not cometabolize additional chloroethenes (11). Other *Dehalococcoides* strains, such as BAV1, GT and VS, are known to fully dechlorinate cis-DCE and VC to ethene (14,16,19). Quantification of reductive dehalogenase genes is used to more definitively confirm the potential for reductive dechlorination of TCE, cis-DCE, and vinyl chloride (12-15).

| Functional Gene | Observation |
|---|---|
| **TCE Reductase** | |
| ***tce*A gene** | The *tce*A gene encodes the enzyme responsible for reductive dechlorination of TCE to *cis*-DCE in some strains of *Dehalococcoides*.<br><br>Absence of *tce*A does not preclude the potential for reductive dechlorination of TCE in the field since the *tce*A gene is not universally distributed among all DHC and is not present in other microorganisms capable of reductive dechlorination of TCE (e.g. *Dehalobacter*).<br><br>Detection of the *tce*A gene provides an additional line of evidence indicating the potential for dechlorination of TCE. |
| **Vinyl Chloride Reductase** | |
| ***bvc*A gene** | The *bvc*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of vinyl chloride to ethene by *Dehalococcoides* sp. str. BAV1 (16).<br><br>Presence of *bvc*A gene indicates the potential for reductive dechlorination of VC to ethene.<br><br>Absence of both *bvc*A and *vcr*A genes suggests VC may accumulate.<br><br>An internal study with ~1,000 samples showed ethene production was observed in 80% of the samples that the DHC population was greater than or equal to $10^4$ cells/mL. The *bvc*A gene was detected in over 50% of these samples.<br><br>Van Der Zaan et al (17) noted that the bvcA gene was the only VC reductase gene detected at three of their sites.<br><br>Alfred Spormann's laboratory at Stanford University (18) reported that the *bvc*A gene was the most abundant and active at the outflow of a PCE fed column study. This section of the column was in the DCE to VC stages of reductive dechlorination thus confirming the importance of the *bvc*A gene for complete reductive dechlorination. |
| ***vcr*A gene** | The *vcr*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of *cis*-DCE and vinyl chloride by *Dehalococcoides* sp. strain VS (14).<br><br>Presence of *vcr*A gene indicates the potential for reductive dechlorination of DCE and/or VC to ethene.<br><br>Absence of both *bvc*A and *vcr*A genes suggest VC may accumulate.<br><br>As with the *bvc*A gene, detection of the *vcr*A gene is associated with ethene production in internal studies (67%) and vinyl chloride reduction in independent studies (14, 17). |



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## Reporting

Microbial Insights can provide a variety of data packages and reporting levels to suit the needs of any project. Data packages range from simple analytical reports with results only to more complex data packages that include a report narrative, analytical results, QC data, and supporting materials including all raw data and chain-of-custody documentation. The figure below shows our standard report and explains the way values are reported.

**Microbial Insights, Inc.**

2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel. (865) 573-8188 Fax. (865) 573-8133

**CENSUS**

**Client:** Company Name
Project: Your Project Name

**MI Project Number:** Unique Laboratory Identifier
Date Received: Date Samples Arrived

**Sample Information**

| **Client Sample ID:** | | Sample A | Sample B | Sample C |
|---|---|---|---|---|
| Sample Date: | | 00/00/0000 | 00/00/0000 | 00/00/0000 |
| Units: | | cells/mL | cells/mL | cells/mL |
| Analyst: | | Intials | Intials | Intials |
| Dechlorinating Bacteria | | | | |
| *Dehalococcoides spp.* | DHC | **1.84E+05** | **2.76E+02** | **2.28E+01 (J)** |
| Functional Genes | | | | |
| tceA Reductase | TCE | **6.00E+01** | **3.23E+01** | <4.00E-01 |
| bvcA Reductase | BVC | **1.17E+04** | **1.81E+01** | <4.00E-01 |
| vcrA Reducatase | VCR | **8.42E+04** | **1.74E+02** | <4.00E-01 |

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

**"J" value**
Result is an estimated value. This data qualifier (flag) is used when the target gene is detected but at a concentration or abundance below the practical quantification limit (PQL).

**< value**
The target gene was not detected at the limit of quantitation (LOQ) reported for that sample.

**"I" value**
QA Procedure indicated that the sample may have exhibited PCR inhibition. Although relatively rare, PCR inhibition can occur due to the presence of metals or humic acids at high concentrations in the sample.



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## Quality Assurance

Microbial Insights' comprehensive Quality Assurance (QA) Program is the foundation of all laboratory analyses, ensuring that our clients receive high-quality analytical services that are timely, reliable, and meet their intended purpose in a cost effective manner. MI is committed to providing quality data that surpasses regulatory and industry standards, thus enabling the client to make well-informed decisions. MI maintains strict standard operating procedures and QA/QC measures throughout all of the analyses offered. The following Table details specific QA/QC procedures that are used for CENSUS.

| QA/QC | Description |
|---|---|
| **Date of Extraction** | DNA and RNA extractions are performed the day the samples are received by MI to minimize the possibility of any changes to the microbial community prior to analysis. |
| **Laboratory Method Blanks** | An extraction blank (no sample added) is processed alongside each set of field samples from DNA extraction through CENSUS® analysis to ensure that cross contamination has not occurred. Although MI has never experienced this issue, the detection of the CENSUS® target (e.g. *Dehalococcoides*) in an extraction blank is direct evidence of cross contamination with a sample or contamination of a reagent and would invalidate the results. If this were to occur, MI would re-extract the sample. If not possible to re-extract, MI would contact the client immediately and notate it on the laboratory report. |
| **Laboratory Control Samples (LCS)** | A laboratory control sample (LCS) or positive control (target DNA) is included with each CENSUS® plate to confirm amplification and as a continuing calibration check. |
| **Negative Controls** | A negative control (no DNA) is included with each CENSUS plate to ensure that cross contamination has not occurred during amplification. As with the extraction blank, detection of CENSUS target (e.g. DHC) in a negative control is direct evidence of contamination and would invalidate the results. If this were to occur, MI would rerun the analysis. |

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Knoxville, TN 37932
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Fax: 865.573.8133
www.microbe.com

# Natural Attenuation Screening Protocol

The following is taken from the USEPA protocol (USEPA, 1998). The results of this scoring process have no regulatory significance.

| Interpretation | Score |
|---|---|
| Inadequate evidence for anaerobic biodegradation* of chlorinated organics | 0 to 5 |
| Limited evidence for anaerobic biodegradation* of chlorinated organics | 6 to 14 |
| Adequate evidence for anaerobic biodegradation* of chlorinated organics | 15 to 20 |
| Strong evidence for anaerobic biodegradation* of chlorinated organics | >20 |

DP-04
Score: 10

Scroll to End of Table

* reductive dechlorination

| Analysis | Concentration in Most Contam. Zone | Interpretation | Yes | No | Points Awarded |
|---|---|---|---|---|---|
| Oxygen* | <0.5 mg/L | Tolerated, suppresses the reductive pathway at higher concentrations | ○ | ◉ | 0 |
| | > 5mg/L | Not tolerated; however, VC may be oxidized aerobically | ○ | ◉ | 0 |
| Nitrate* | <1 mg/L | At higher concentrations may compete with reductive pathway | ○ | ◉ | 0 |
| Iron II* | >1 mg/L | Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions | ◉ | ○ | 3 |
| Sulfate* | <20 mg/L | At higher concentrations may compete with reductive pathway | ○ | ◉ | 0 |
| Sulfide* | >1 mg/L | Reductive pathway possible | ○ | ◉ | 0 |
| Methane* | >0.5 mg/L | Ultimate reductive daughter product, VC Accumulates | ○ | ◉ | 0 |
| Oxidation Reduction Potential* (ORP) | <50 millivolts (mV) | Reductive pathway possible | ◉ | ○ | 1 |
| | <-100mV | Reductive pathway likely | ○ | ◉ | 0 |
| pH* | 5 < pH < 9 | Optimal range for reductive pathway | ◉ | ○ | 0 |
| TOC | >20 mg/L | Carbon and energy source; drives dechlorination; can be natural or anthropogenic | ◉ | ○ | 2 |
| Temperature* | >20°C | At T >20°C biochemical process is accelerated | ○ | ◉ | 0 |
| Carbon Dioxide | >2x background | Ultimate oxidative daughter product | ○ | ◉ | 0 |
| Alkalinity | >2x background | Results from interaction of carbon dioxide with aquifer minerals | ○ | ◉ | 0 |
| Chloride* | >2x background | Daughter product of organic chlorine | ○ | ◉ | 0 |
| Hydrogen | >1 nM | Reductive pathway possible, VC may accumulate | ○ | ◉ | 0 |
| Volatile Fatty Acids | >0.1 mg/L | Intermediates resulting from biodegradation of aromatic compounds; carbon and energy source | ○ | ◉ | 0 |
| BTEX* | >0.1 mg/L | Carbon and energy source; drives dechlorination | ○ | ◉ | 0 |
| PCE* | | Material released | ◉ | ○ | 0 |
| TCE* | | Daughter product of PCE [a/] | ◉ | ○ | 2 |
| DCE* | | Daughter product of TCE. If cis is greater than 80% of total DCE it is likely a daughter product of TCE[a/]; 1,1-DCE can be a chem. reaction product of TCA | ◉ | ○ | 2 |
| VC* | | Daughter product of DCE[a/] | ○ | ◉ | 0 |
| 1,1,1-Trichloroethane* | | Material released | ○ | ◉ | 0 |
| DCA | | Daughter product of TCA under reducing conditions | ○ | ◉ | 0 |
| Carbon Tetrachloride | | Material released | ○ | ◉ | 0 |
| Chloroethane* | | Daughter product of DCA or VC under reducing conditions | ○ | ◉ | 0 |
| Ethene/Ethane | >0.01 mg/L | Daughter product of VC/ethene | ○ | ◉ | 0 |
| | >0.1 mg/L | Daughter product of VC/ethene | ○ | ◉ | 0 |
| Chloroform | | Daughter product of Carbon Tetrachloride | ○ | ◉ | 0 |
| Dichloromethane | | Daughter product of Chloroform | ○ | ◉ | 0 |

* required analysis.
a/ Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).

SCORE

Reset

End of Form

# Natural Attenuation Screening Protocol

The following is taken from the USEPA protocol (USEPA, 1998). The results of this scoring process have no regulatory significance.

| Interpretation | Score |
|---|---|
| Inadequate evidence for anaerobic biodegradation* of chlorinated organics | 0 to 5 |
| Limited evidence for anaerobic biodegradation* of chlorinated organics | 6 to 14 |
| Adequate evidence for anaerobic biodegradation* of chlorinated organics | 15 to 20 |
| Strong evidence for anaerobic biodegradation* of chlorinated organics | >20 |

DP-05
Score: 10

Scroll to End of Table

* reductive dechlorination

| Analysis | Concentration in Most Contam. Zone | Interpretation | Yes | No | Points Awarded |
|---|---|---|---|---|---|
| Oxygen* | <0.5 mg/L | Tolerated, suppresses the reductive pathway at higher concentrations | ○ | ◉ | 0 |
| | > 5mg/L | Not tolerated; however, VC may be oxidized aerobically | ○ | ◉ | 0 |
| Nitrate* | <1 mg/L | At higher concentrations may compete with reductive pathway | ○ | ◉ | 0 |
| Iron II* | >1 mg/L | Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions | ◉ | ○ | 3 |
| Sulfate* | <20 mg/L | At higher concentrations may compete with reductive pathway | ○ | ◉ | 0 |
| Sulfide* | >1 mg/L | Reductive pathway possible | ○ | ◉ | 0 |
| Methane* | >0.5 mg/L | Ultimate reductive daughter product, VC Accumulates | ○ | ◉ | 0 |
| Oxidation Reduction Potential* (ORP) | <50 millivolts (mV) | Reductive pathway possible | ◉ | ○ | 1 |
| | <-100mV | Reductive pathway likely | ○ | ◉ | 0 |
| pH* | 5 < pH < 9 | Optimal range for reductive pathway | ◉ | ○ | 0 |
| TOC | >20 mg/L | Carbon and energy source; drives dechlorination; can be natural or anthropogenic | ◉ | ○ | 2 |
| Temperature* | >20°C | At T >20°C biochemical process is accelerated | ○ | ◉ | 0 |
| Carbon Dioxide | >2x background | Ultimate oxidative daughter product | ○ | ◉ | 0 |
| Alkalinity | >2x background | Results from interaction of carbon dioxide with aquifer minerals | ○ | ◉ | 0 |
| Chloride* | >2x background | Daughter product of organic chlorine | ○ | ◉ | 0 |
| Hydrogen | >1 nM | Reductive pathway possible, VC may accumulate | ○ | ◉ | 0 |
| Volatile Fatty Acids | >0.1 mg/L | Intermediates resulting from biodegradation of aromatic compounds; carbon and energy source | ○ | ◉ | 0 |
| BTEX* | >0.1 mg/L | Carbon and energy source; drives dechlorination | ○ | ◉ | 0 |
| PCE* | | Material released | ◉ | ○ | 0 |
| TCE* | | Daughter product of PCE [a/] | ◉ | ○ | 2 |
| DCE* | | Daughter product of TCE. If cis is greater than 80% of total DCE it is likely a daughter product of TCE[a/]; 1,1-DCE can be a chem. reaction product of TCA | ◉ | ○ | 2 |
| VC* | | Daughter product of DCE[a/] | ○ | ◉ | 0 |
| 1,1,1-Trichloroethane* | | Material released | ○ | ◉ | 0 |
| DCA | | Daughter product of TCA under reducing conditions | ○ | ◉ | 0 |
| Carbon Tetrachloride | | Material released | ○ | ◉ | 0 |
| Chloroethane* | | Daughter product of DCA or VC under reducing conditions | ○ | ◉ | 0 |
| Ethene/Ethane | >0.01 mg/L | Daughter product of VC/ethene | ○ | ◉ | 0 |
| | >0.1 mg/L | Daughter product of VC/ethene | ○ | ◉ | 0 |
| Chloroform | | Daughter product of Carbon Tetrachloride | ○ | ◉ | 0 |
| Dichloromethane | | Daughter product of Chloroform | ○ | ◉ | 0 |

* required analysis.
a/ Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).

SCORE

Reset

End of Form

# APPENDIX B

# WASTE DISPOSAL DOCUMENTATION

EWMI RAPID RESPONSE

**Sales Order:** 57791
**CRM#:** 117196

**Customer:** Irvington Rugs and Cleaners
**Contact:**
**Phone:** **E-Mail:**
**Job Site:** Irvington Rugs and Cleaners
53 Main Street
Irvington, NY 10533
**CSR:** LM

**Site Notes:** ~~Do you need a lift gate? ?~~ drum cart
~~Do you need a pallet jack? ?~~
~~What are the loading dock hours? ?~~
On site at 8am

**Job Notes:** Henl 347- ~~846 8546~~ 216 5559

| Names | Code | Start | O.S. Start | O.S. Finish | Finish | Total Hours |
|---|---|---|---|---|---|---|
| Brandon M. | | 6:00 | 8:30 | 9:30 | 4:30 | 3.5hrs |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| QTY | Materials/Consumables |
|---|---|
| 1 | PPE Level -(Circle One) Mod-D D C B |
| | PPE Level -(Circle One) Mod-D D C B |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

| Disposal Facility / Manifest # | Count |
|---|---|
| CC/ 0350806 | 02 |
| | |
| CC/ 0350305 | 01 |
| | |
| | |
| | |
| | |

| Equipment | QTY |
|---|---|
| T-134 | 1 |
| Drum Cart | 1 |
| Tool Box | 1 |
| | |
| | |
| | |
| | |
| | |
| | |

| Line | Profile | Description | Container Qty | Type | Size |
|---|---|---|---|---|---|
| 1 | 212984 | PFAS IMPACTED GROUNDWATER | ✓ 2 | DM | 55 |
| 2 | 212984 | IDW SOIL | ✓ 1 | DM | 55 |

**Notes:**
- Drove to site
- Spoke with contact and located waste
- Marked and labeled all pieces
- Loaded truck with waste
- Tightened all rings
- Filled out paper work and acquired signatures
- Left site

THE UNDERSIGNED AGREES THAT ALL THE ABOVE SERVICE INFORMATION IS CORRECT
CUSTOMER SIGNATURE _____ PRINTED NAME MICHAEL M. ESPINOZA DATE 11/11/22

# Straight Bill of Lading

Please type or print

EWMI RAPID RESPONSE INC.

| 1. Generator EPA ID# (if applicable) | 2. Page 1 of | 3. Emergency Response Number | 4. Document Tracking Number |
|---|---|---|---|
| NYD982537607 | 1 | Rapid Response Inc. 888-788-3562 | EWMI D360805 |

**Generator**

5. Generator Name and Mailing Address

Irvington Rugs and Cleaners
53 Main Street
Irvington, NY 10533

Generator Phone 518-402-9662

Generator's Site Address (if different)

6. Transporter 1. Company Name: Environmental Waste Minimization, Inc.
US EPA ID Number (if applicable): PAR000501577

7. Transporter 2. Company Name
US EPA ID Number (if applicable)

8. Facility Name and Mailing Address

Cycle Chem, Inc.
550 Industrial Drive
Lewisberry, PA 17339

717-938-4700

Facility Phone

US EPA ID Number (if applicable): PAD067098822

| 9a HM | 9b Material Description (Proper shipping name required if DOT Hazardous Material) | 10. Containers No. | 10. Containers Type | 11. Total Quantity | 12. Unit (Wt/Vol) | 13. Waste Code |
|---|---|---|---|---|---|---|
| | 1. Non-Hazardous Solids (Soil) DOT/RCRA Non-Regulated | 001 | DM | 00150 | P | |
| | 2. | | | | | |
| | 3. | | | | | |
| | 4. | | | | | |

14. Special Handling Instructions and Additional Information

1.) Approval #: 212984 ; ERG # IDW SOIL (1 x 55gal)

Job Number 117105

T-134

16. Generator/Offeror's Certification: I hereby declare that the contents of this document are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labeled/placarded and are in all respects in proper condition for transport according to applicable national governmental regulations.

| Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| [illegible] | [illegible] | 11 | 11 | 22 |

**Transporter**

17. Transporter 1. Acknowledgment of Receipt of Materials

| Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| Brandon Mohammed | [signature] | 11 | 11 | 22 |

18. Transporter 2. Acknowledgment of Receipt of Materials

| Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| | | | | |

**Facility**

19. Discrepancy (to be competed by Designated Facility)

20. Designated Facility: Certification of receipt of the materials covered by this shipping paper accepted as noted in item 18.

| Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| | | | | |

# Straight Bill of Lading

Please type or print

| 1. Generator EPA ID# (if applicable) | 2. Page 1 of | 3. Emergency Response Number | 4. Document Tracking Number |
|---|---|---|---|
| NYD982537607 | 1 | Rapid Response Inc. 888-788-4567 | D350806 |

**5. Generator Name and Mailing Address**

Irvington Rugs and Cleaners
93 Main Street
Irvington, NY 10533

Generator Phone 518-402-9662

**Generator's Site Address (if different)**

**6. Transporter 1. Company Name** Environmental Waste Minimization, Inc.

US EPA ID Number (if applicable) PAR000501577

**7. Transporter 2. Company Name**

US EPA ID Number (if applicable)

**8. Facility Name and Mailing Address**

Cycle Chem, Inc.
217 South First St.
Elizabeth, NJ 07206

908-355-5800

Facility Phone

US EPA ID Number (if applicable) NJD002200046

**Generator**

| 9a HM | 9b Material Description (Proper shipping name required if DOT Hazardous Material) | 10. Containers No. | 10. Containers Type | 11. Total Quantity | 12. Unit (Wt/Vol) | 13. Waste Code |
|---|---|---|---|---|---|---|
| | 1. Non-Hazardous Liquids (Groundwater) DOT/RCRA Non Regulated | 002 | DM | 00300 | P | |
| | 2. | | | | | |
| | 3. | | | | | |
| | 4. | | | | | |

**14. Special Handling Instructions and Additional Information**

1.) Approval #: 212984 ; ERG # PFAS IMPACTED GROUNDWATER (2x55gal)

Job Number 117106

T-139

**16. Generator/Offeror's Certification:** I hereby declare that the contents of this document are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labeled/placarded and are in all respects in proper condition for transport according to applicable national governmental regulations.

| Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| [illegible] | [signature] | 11 | 11 | 22 |

**Transporter**

**17. Transporter 1. Acknowledgment of Receipt of Materials**

| Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| Boubou Mohammed | [signature] | 11 | 11 | 22 |

**18. Transporter 2. Acknowledgment of Receipt of Materials**

| Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| | | | | |

**Facility**

**19. Discrepancy (to be competed by Designated Facility)**

**20. Designated Facility: Certification of receipt of the materials covered by this shipping paper accepted as noted in item 18.**

| Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| | | | | |

# APPENDIX C

# SURVEY DELIVERABLES

# LAWSON SURVEYING & MAPPING

Robert J. Lawson, LS, Principal
New York State License No. 050086


W.O. 7265 SOIL VAPOR POINTS 55 MAIN STREET IRVINGTON, NY.
SURVEY DATE: MARCH 24, 2022. HORIZONTAL DATUM: NEW YORK SPCS EAST ZONE FEET.
VERTICAL DATUM: NAVD 88 FEET.

| POINT | NORTHING | EASTING | ELEV. | DESCRIPTION |
|---|---|---|---|---|
| 200 | 804139.9539 | 665857.7050 | 82.20 | GV-016 GROUND |
| 201 | 804114.5726 | 665854.7525 | 81.72 | DP-016 GROUND |
| | | | 82.99 | TOP CASING |
| 202 | 804249.2866 | 665874.9162 | 83.24 | DP-010 GROUND |
| 203 | 804252.8755 | 665875.2874 | 83.34 | GV-010 GROUND |
| 204 | 804303.1584 | 665884.3637 | 84.07 | DP-009 GROUND |
| | | | 84.69 | TOP CASING |
| 205 | 804202.1280 | 665729.3762 | 72.41 | DP-015 TOP GRATE |
| 206 | 804204.3684 | 665730.1011 | 72.28 | GV-015 TOP GRATE |
| 207 | 804073.2720 | 665589.1078 | 68.81 | DP-014 GROUND |
| 208 | 804310.1746 | 665665.6871 | 69.32 | GV-012 GROUND |
| 209 | 804313.1803 | 665667.4532 | 69.53 | DP-012 GROUND |
| | | | 69.34 | TOP CASING |
| 210 | 804381.0031 | 665678.0860 | 73.03 | GV-011 GROUND |
| 211 | 804385.9716 | 665679.4949 | 73.23 | DP-011 GROUND |
| | | | 75.39 | TOP CASING |
| 212 | 804336.8010 | 665878.5680 | 84.67 | GV-009 GROUND |
| 213 | 804327.4484 | 665948.5455 | 86.54 | GV-008 GROUND |
| 214 | 804325.7675 | 665951.4447 | 86.67 | DP-008 GROUND |
| 215 | 804074.5272 | 665846.1984 | 81.48 | GV-017 GROUND |
| 216 | 804073.4326 | 665845.8864 | 81.45 | DP-017 GROUND |
| | | | 82.00 | TOP CASING |

Company: Lawson Surveying and Mapping

Surveyor Signature/Seal

Robert J. Lawson, L.S. NY#50086

April 14, 2022


PO Box 1098, 5546 State Highway 7, Suite 1, Oneonta, New York 13820

Phone: 607-432-3300 Fax: 607-432-8313

EMAIL: INFO@LAWSONSURVEY.COM

WEBSITE: WWW.LAWSONSURVEY.COM

# APPENDIX D
# FIELD DATA RECORDS

# APPENDIX D
# FIELD DATA RECORDS

**D.1 49 MAIN STREET FIELD REPORT**

**D.2 BEDROCK WELL INSTALLTION**

**D.3 GROUNDWATER SAMPLING**

**D.3.1 MARCH 2022**

**D.3.2 MAY 2022**

**D.3.3 JUNE 2022**

**D.3.4 MARCH 2024**

**D.4 SOIL SAMPLING**

**D.4.1 SEPTEMBER 2022**

**D.4.2 OCTOBER 2023**

**D.5 EXTERIOR SOIL VAPOR SAMPLING**

**D.1**

**49 MAIN STREET FIELD REPORT**

# Daily Field Activities Summary
## NYSDEC-Irvington Rugs and Cleaners
## 53 Main St,
## Irvington, NY

1/12/22

8:06 a.m. (Michael Ladny) MACTEC Engineering and Geology (MACTEC) on-sight. MACTEC called Andrew, building maintenance manager, to let him know MACTEC was on-sight and how to access basement.

> Blood Hound (GPR/Utilities Mark-out)-Bill Moskal from Blood Hound was on-sight at 7:45 a.m. to conduct GPR in basement around 2'x2' brick sump. MACTEC conducted tailgate/scope of work(SOW)/health and safety (H&S) with Blood Hound. Blood Hound conducted floor scan. He did find an unknown anomaly that was 7' east of the sum but it seemed to be in-line with the sump (Photo #1). The unknown anomaly was roughly 2' in length. Blood Hound had no other finding under the basement slab. Blood Hound then connected power to the 3" cast iron pipe that is in the bottom of sump. He was able to trace the 3" pipe outside of building on N. Dutcher St. He was able to trace it from the outside of the building, across the sidewalk and onto N. Dutcher St (Photo #2, #3). The signal was lost on the other side of the N. Dutcher St. Blood Hound was off-site 10:30 a.m.

9:00 a.m. MACTEC (Mike) met with Steve Taylor for Radon Mitigation Corporation of America (RMCA), to conduct a walkthrough of the building to obtain a quote from RMCA to install a sub-slab depressurization system (SSDS) in basement. Steve suggested that they would put the blower outside in the northern corner of building and run exhaust pipe along back of building, extending past the roof line. There is a dumb waiter in middle of building, but it doesn't extend to roof, it stops at third floor. MACTEC also asked RMCA to include a price to remove concrete depression, back fill, and re-pour slab to match grade in boiler room.

MACTEC Collected water sample out of the 3" iron pipe in sump. The water was clear, no odor or sheen. MACTEC collected a water sample at a low flow rate; all new tubing was used. Tubing was inserted into pipe roughly 5". (Photo #4 & #5)

Sample ID- 360175-GW002-14

Sample Time- 10:30 a.m.

Aztech/Labella

Frank and Lewis, Aztech, were on-site @ 9:00 a.m. MACTEC conducted Tailgate/SOW/H&S meeting. After MACTEC collected water sample out of the 3" iron pipe, Aztech/Labella vacuumed out 2'x2' sump, exposing a brick bottom to the sump. They next vacuumed out the 3" iron pipe, they were able to remove all water from pipe, instantly there was a sewer/septic smell coming from pipe. This told us that the pipe is connected to a sewer/septic line and that it is not clogged. The sump constantly fills with ground water. When trying to snake the line, the snake went down then up, indicating a trap. The snake couldn't get passed the trap. There is a clean-out on top of the trap in sump, but it is rusted shut and unable to open. (Photo #6, #7)

MACTEC was able to collect a soil sample directly under the brick sump. MACTEC was able to remove a brick at bottom of sump and using a clean hand auger and collect a 0"-8" soil sample. Ground water was constantly running into sump and draining into 3" pipe. MACTEC was unable to collect a sample at the 2' interval due to encountering rocks and gravel with hand auger(refusal).

Sample ID- 360175-HA001001, 360175-HA001001D, 360175-HA001001MS, 360175-HA001001MD

Sample Time- 11:00 a.m.

Soil Lithology- Wet, med brown fine to coarse sand and silt with cobbles, pebbles.

PID- 1510 part per billion (ppb)

Aztech/Labella removed debris in concrete depression, shoveled out sediment and then vacuumed out water. Ground water immediately filled back in the depression through the cracks. They scrubbed and vac-out the depression again to remove as much sediment as possible. (Photo #8)

MACTEC then collected a ground water sample out of the concrete depression. The water was clear, no odor or sheen. MACTEC used low flow method to collect a water sample, all new tubing was used.

Sample ID- 360175-GW002-13

Sample Time- 12:00 p.m.

Depression Measurements

Top of slope 8'x 12'6"

Bottom of slope 6'x10'

Aztech/Labella cored the basement slab in two locations. Location 1 - was 2' North and 2' East of the unknown anomaly, roughly 12' East of the brick sump. Location 2 -was roughly 18' East of the sump. Directly between the concrete depression and the brick sump. Location 2 is roughly 2' off the opposite foundation wall, before concrete step. Both locations are in the same concrete slab as the brick sump.

Location 1- Core thickness 7.5" (1 ½" of concrete then 3" gravel layer then 3" of concrete) (Photo #9)

After coring location 1, ground water was 1" below bottom of slab (Photo #10). After 30 Minute ground water was 5" below grade (Photo #11). MACTEC collected both a sub-slab soil and ground water sample.

The ground water that was sampled out of the core hole (location 1) was clear, no odor or sheen. MACTEC collected a water sample at a low flow rate; all new tubing was used.

Sample ID- 360175-GW002-15

Sample Time- 15:45 p.m.

The soil sample was taken by a clean hand auger directly below the concrete slab.

Sample ID- 360175-HA002001

Sample Time- 14:40 p.m.

Soil Lithology- Wet, med brown fine to coarse sand and silt with cobbles, pebbles.

PID- 1549ppb

Location 2- Core thickness 7.5" (1 ½" of concrete then 3" gravel layer then 3" of concrete) (Photo #12)

After coring location 2, ground water was at bottom of slab (Photo #13). MACTEC noticed a heating oil-like odor as well as a yellowish substance on top of ground water in the core hole. The head space in the core hole was 34.68 ppm. (Photo #13, #14) MACTEC collected both a sub-slab soil and ground water sample from core location.

The ground water that was sampled out of the core hole (location 2) had a yellowish substance on top of the ground water, it had a heating oil-like odor. MACTEC collected a water sample at a low flow rate; all new tubing was used.

Sample ID- 360175-GW002-16

Sample Time- 16:00 p.m.

The soil sample was taken by hand directly below the concrete slab. It was very difficult to get a sample due to numerous bigger rocks under slab.

Sample ID- 360175-HA003001

Sample Time- 15:30 p.m.

Soil Lithology- Wet, med brown medium to coarse sand and silt with cobbles, pebbles, Trace of rocks.

PID- 68.4 ppm

DRUMS ON-SIGHT= (1) open top. Drum has 7" of water and 2" of sediment on bottom. Total 9" of water/sediment. Total drum height is 32". Roughly 1/3 is full. Drum is labeled. (Photo #15)

Photo #16- sketch of basement

MACTEC off-site @17:15

**SAFTEY MOMENT -Site Lighting**

Aztech/Labella brought a free-standing work light to make sure there was enough lighting to work safely. Before the job started, site lighting was discussed as a safety concern and that extra lighting should be brought to the site. Even though the basement had lights, some were missing blubs or some just didn't work. The extra lighting gave us plenty of light to conduct the work and to help see in those shadow/dark areas, where the overhead lights couldn't reach. This seems like a small thing but having ample light is critical to conducting work safety. Site lighting is something that should be discussed when there is a possibility of working in low light conditions.

# Photos

**Photo #1**



**Photo #2**



**Photo #3**



**Photo #4**



**Photo #5**



**Photo #6**



**Photo #7**

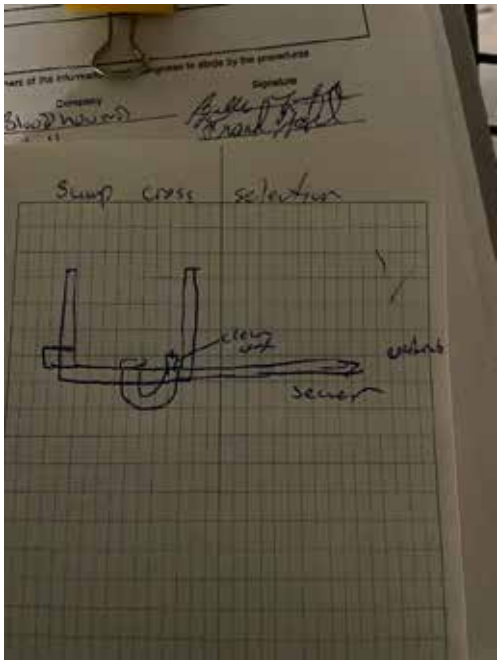



**Photo #8**



**Photo #9**



**Photo #10**



**Photo #11**



**Photo #12**



**Photo #13**



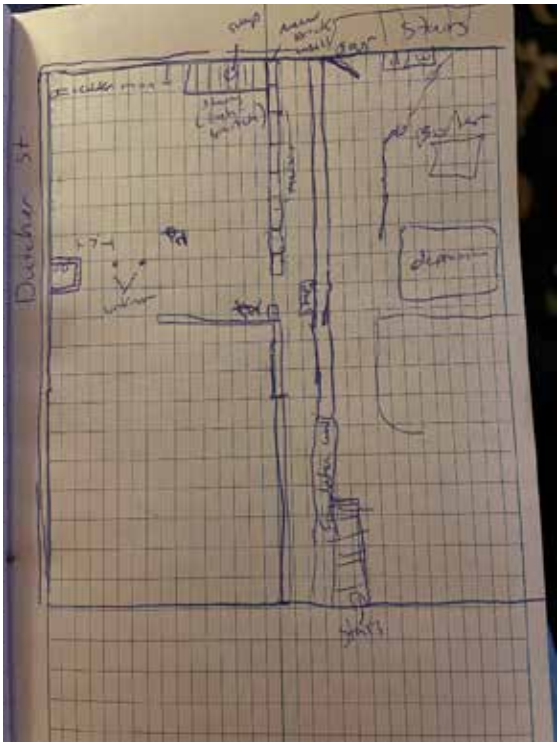

**Photo #14**



**Photo #15**



**Photo #16**



**D.2**

**BEDROCK WELL INSTALLTION**

**MAY 2022**

# SOIL BORING LOG

MACTEC

511 Congress Street, Portland Maine 04101

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | NYSDEC Irvington Cleaners | | | Boring ID: | MW-03D |
| Project Location: | Irvington, NY | | | Page No. | 1 |
| Project No.: | 3616216144 | Client: | NYSDEC | of: | 2 |
| Boring Location: | MW-03D | Refusal Depth: | NA | Total Depth: | 29.3' |
| Weather: | Sunny, 70s | Soil Drilled: | ~19' | Drilling Method: | Direct Push |
| Subcontractor: | LaBella | Rock Drilled: | ~9.3' | Protection Level: | D |
| Driller: | Ray Hammond | Date Started: | 5/24/2022 | Date Completed: | 5/25/2022 |
| Rig Type/Model: | 7822DT | Logged By: | JJM | Checked By: | |
| Reference Elevation: | UNK | Water Level: | 5'-6' | Time: | |

| Bore Hole OD: | 3" |
|---|---|
| Casing Size: | 3" |
| Sampler: | Macrocore |
| Sampler ID/OD: | 1.25/2.25 |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0-5 | NS | 2.3/5 | NA | NA | 0.1 | NS | NS | 3" Asphalt Patch<br>3"-1.3' Brown, fine silty Sand, trace rounded cobbles<br>1.3'-2.3' filter pack sand | Fill<br>SW<br>GW | |
| 5-10 | NS | 5'/5' | NA | NA | 0.6 | NS | NS | 5'-6.3' Gray, filter pack sand. Slight earthy odor.<br>6.3-8.2 Saturated, gray fine Sand, with silt, trace gravel<br>8.2-10 Brown fine Sand, with silt, trace gravel | GW<br>SM/GM<br>GM/GP | |
| 10-15 | NS | 5'/5' | NA | NA | 0.0 | NS | NS | 10-13.6 heavy saturation, brown silty fine Sand<br>13.6-15 Brown fine Sand, with silt, trace gravel | SW<br>SW/GW | |
| 15-20 | NS | 4'/5' | NA | NA | 0.0 | NS | NS | 0-4' brown, silty Sand, trace angular gravel<br>Bedrock at 19' | SW/GW | |
| | | | | | | | | | | |

**NOTES:**

# ROCK CORING LOG

MACTEC

511 Congress Street, Portland Maine 04101

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | NYSDEC Irvington Cleaners | | | Boring ID: | MW-03D |
| Project Location: | Irvington NY | | | Page No. | 1 |
| Project No.: | 3616216144 | Client: | NYSDEC | of: | 2 |
| Boring Location: | MW-03D | Top of Rock: | NA | Total Depth: | 29.3 |
| Weather: | Sunny, 70s | Casing Depth: | ~19 | Drilling Method: | Nx Coring |
| Subcontractor: | LaBella | Rock Drilled: | ~9.3 | Protection Level: | D |
| Driller: | Ray Hammond | Date Started: | 5/24/2022 | Date Completed: | 5/25/2022 |
| Rig Type/Model: | 7822DT | Logged By: | JJM | Checked By: | |
| Reference Elevation: | UNK | Water Level: | 6-May | Time: | |

| Casing Type: | Steel |
|---|---|
| Casing Size: | 3" |
| | |
| Core Barrel Type: | Nx |
| Core Size: | 2" |
| Core Length: | 60" |

| Drilling Information | | | | Sample Quality | | | | Sample Description and Classification | Lithologic Type | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Run Number | Run Length (ft) / Recovery (ft) | Penetration Rate (ft/min) | RQD (%) | Fracture Depth (feet) | Fracture Type | Fracture Angle | | | |
| 19'-26.3' | 1 | 4.3'/5' | 1ft/1.50 min | 73 | 19.1-19.4 | N/WB | 38 | Light gray, hard stone. Dark gray lensing throughout, reddish brown at water bearing fractures. Mica present, water bearing seam at bottom. | Fordham Gneiss | |
| | | | | | 19.10 | M | 0 | | | |
| | | | | | 20.1-20.5 | N | 154 | | | |
| | | | | | 20.7 | N/WB | 0 | | | |
| | | | | | 22.25 | M | 14 | | | |
| | | | | | 23.5 | N/WB | 0 | | | |
| 26.3-29.3 | 2 | 3'/3' | 1ft/1.50 min | 86 | 26.3-26.4 | N/WB | 0 | water bearing seam in top 1", Light gray hard stone with darger gray lensing throughout. Mica through core | Fordham Gneiss | |
| | | | | | 27.32 | M | 0 | | | |
| | | | | | | | | | | |

**NOTES:**

# WELL/PIEZOMETER CONSTRUCTION RECORD STICKUP

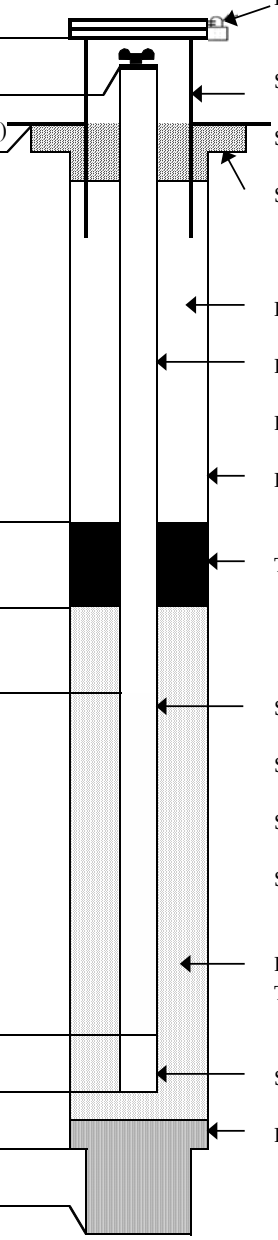
**LOCATION ID:** MW-03D

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | NYSDEC Irvington Cleaners | | | Date Started: 24-May | Date Completed 5/25/2022 |
| Project Location: | Irvington NY | | | Logged By: JJM | |
| Project Number: | 3616216144 | Task Number | 2 | Checked By: CRS | Checked Date: 7/1/2022 |
| Subcontractor: | LaBella | Drilling Method | DP/NX Coring | | |
| Development Method: | Surge/Peristaltic | Development Date: | 5/26/2022 | | |
| Bucking Posts/Ballards: | NA | | | | |
| Notes: | | | | | |

**Measuring Point Information**

| | |
|---|---|
| **Measuring Point (MP) Type:** | Top Of Riser |
| **MP Elevation (ft):** | UNK |

| Item | Depth BMP (ft) | Elevation (ft) | Description | |
|---|---|---|---|---|
| Stickup | NA | NA | Lock Identification | NA |
| Riser Pipe (Top) | | | Stickup Casing Type: | NA |
| Ground Surface Elevatio | UNK | 88.7 (estimated) | Stickup Casing Diameter: | 4" |
| | | | Surface Seal Type: | Concrete |
| | | | Backfill/Grout Type: | Sand |
| | | | Riser Pipe Type: | PVC (1") |
| | | | Riser Pipe ID: | NA |
| | | | Borehole Diameter: | 3" |
| Top of Well Seal | 18 | | Type of Seal: | Bentonite chip |
| Top of Sand Pack | 19 | | | |
| Top of Screen | 20.65 | | Screen Type: | PVC |
| | | | Screen ID: | NA |
| | | | Screen Slot Size: | No.2 |
| | | | Screen Length: | 5 |
| | | | Filter/Sand Pack Type: | No. 2 Sand |
| Base of Screen | 25.65 | | | |
| End Cap | 25.85 | | Sump: | NA |
| Drilled Depth | 29.3 | | Fallback/Backfill: | 3.54 |
| Bottom of Exploration | 29.3 | | | |
| Bedrock Surface | 19' | | | |



NOT TO SCALE

MACTEC
511 Congress Street, Portland Maine 04101

# D.3
# GROUNDWATER SAMPLING

**D.3.1**
**GROUNDWATER SAMPLING**
**MARCH 2022**

# LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME: NSTGC Irvington
PROJECT NUMBER: 361621614
SAMPLE ID: DP0304
SAMPLE TIME: 1525

DP-002

DATE: 3/22/22
START TIME: 1430
END TIME: 1530
SITE NAME/INSTALLATION:
PAGE: 1 OF 1

WELL DIAMETER (IN.): ☐ 1 ☐ 2 ☐ 4 ☐ 6 ☐ 8 ☐ OTHER
TUBING ID (INCHES): ☐ 1/8 ☒ 1/4 ☐ 3/8 ☐ 1/2 ☐ 5/8 ☐ OTHER
MEASUREMENT POINT (MP): ☐ TOP OF RISER (TOR) ☐ TOP OF CASING (TOC) ☐ OTHER

WELL INTEGRITY

| | YES | NO | N/A |
|---|---|---|---|
| CAP | | ☒ | |
| CASING | ☒ | | |
| LOCKED | | | ☒ |
| COLLAR | ☒ | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| INITIAL DTW (BMP) | 3.80 FT | FINAL DTW (BMP) | 4.45 FT | PROT. CASING STICKUP (AGS) | NM FT | TOC/TOR DIFFERENCE | NM FT |
| WELL DEPTH (BMP) | 12.15 FT | SCREEN INTERVAL | 10' FT | PID AMBIENT AIR | NA PPM | REFILL TIMER SETTING | NA SEC |
| WATER COLUMN | 8.35 FT | DRAWDOWN VOLUME (final DTW- initial DTW X well diam. squared X 0.041) | 0.03 GAL | PID WELL MOUTH | NA PPM | DISCHARGE TIMER SETTING | NA SEC |
| CALCULATED GAL/VOL (water column X well diameter$^2$ X 0.041) | 0.342 GAL | TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL) | 3.12 GAL | DRAWDOWN/ TOTAL PURGED | 0.009 | PRESSURE TO PUMP | NA PSI |

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% and <10 ntu or 3 values <5 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1430 | BEGIN PURGING | | | | | | | | | |
| 1450 | 4.45 | 2200 | 12.08 | 0.645 | 1.73 | 7.25 | 1.9 | 69.0 | | |
| 1455 | 4.45 | | 12.10 | 0.643 | 1.64 | 7.23 | 4.3 | 17.5 | | |
| 1500 | 4.45 | | 12.07 | 0.643 | 1.66 | 7.23 | 5.0 | 8.24 | | |
| 1505 | 4.45 | | 12.08 | 0.643 | 1.99 | 7.21 | 6.9 | 7.44 | | |
| 1510 | 4.45 | | 12.10 | 06.44 | 2.07 | 7.20 | 9.1 | 6.38 | | |
| 1515 | 4.45 | | 12.16 | 0.644 | 2.04 | 7.20 | 10.4 | 6.22 | | |
| 1530 | pump off | | | | | | | | | |

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

| | | | | | | |
|---|---|---|---|---|---|---|
| | 12 | 0.64 | 2.0 | 7.2 | 10.4 | 6.2 |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP: ☐ PERISTALTIC ☐ SUBMERSIBLE ☐ BLADDER ☐ WATTERA ☐ OTHER ☐ OTHER

DECON FLUIDS USED: ☐ ALCONOX ☐ DEIONIZED WATER ☐ POTABLE WATER ☐ NITRIC ACID ☐ HEXANE ☐ METHANOL ☐ OTHER

TUBING/PUMP/BLADDER MATERIALS: ☐ SILICON TUBING ☐ HDPE TUBING ☐ LDPE TUBING ☐ OTHER ☐ OTHER

☐ S. STEEL PUMP MATERIAL ☐ PVC PUMP MATERIAL ☐ GEOPROBE SCREEN ☐ OTHER ☐ OTHER ☐ OTHER

EQUIPMENT USED: ☐ WL METER M200-68 ☐ PID ☐ WQ METER MOI-506 ☐ TURB. METER MO2-26 ☐ PUMP ☐ OTHER ☐ FILTERS NO. ___ TYPE ___

ANALYTICAL PARAMETERS

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| ☐ | VOC | 8260 | TOT. | N | HCL | 80mL | ~~FD/MS/MSD~~ SM |
| ☐ | SVOC | 8270 | | | UNP | x2 1L amp | |
| ☐ | Pesticides | 6081 | | | | | |
| ☐ | PCB | 6082 | | | | | |
| ☐ | Mercury/Metals | 6010/7470/71 | | | HNO3 | 200 mL | |
| ☐ | PFAS | 537 | | | UNP | 200mL | |

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: ☒ YES ☐ NO
NO-PURGE METHOD UTILIZED: ☐ YES ☐ NO
NUMBER OF GALLONS GENERATED: 3.12

NOTES: Stable

Sampler Signature: [signature] Print Name: S. M
Checked By: [signature] Date: 4/4/22

DEVIATIONS FROM THE WORK PLAN

REV. 3/29/2019

# LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC
511 Congress Street
Suite 200
Portland, Maine 04101

| | |
|---|---|
| PROJECT NAME | NYSDEC Irvington |
| PROJECT NUMBER | 3816216144 |
| SAMPLE ID | OP04011 |
| SAMPLE TIME | 1355 |
| LOCATION ID | OP04011 |
| DATE | ~~1230~~ 3/23 |
| START TIME | 1230 |
| END TIME | 1930 |
| SITE NAME/INSTALLATION | |
| PAGE | 1 OF 1 |

WELL DIAMETER (IN.) ☑ 1 ☐ 2 ☐ 4 ☐ 6 ☐ 8 ☐ OTHER
TUBING ID (INCHES) ☐ 1/8 ☑ 1/4 ☐ 3/8 ☐ 1/2 ☐ 5/8 ☐ OTHER
MEASUREMENT POINT (MP) ☐ TOP OF RISER (TOR) ☐ TOP OF CASING (TOC) ☐ OTHER

WELL INTEGRITY

| | YES | NO | N/A |
|---|---|---|---|
| CAP | ☒ | | |
| CASING | ☒ | | |
| LOCKED | ☒ | | ☒ |
| COLLAR | ☒ | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| INITIAL DTW (BMP) | 5.80 FT | FINAL DTW (BMP) | 7.80 FT | PROT. CASING STICKUP (AGS) | NM FT | TOC/TOR DIFFERENCE | NM FT |
| WELL DEPTH (BMP) | 14.05 FT | SCREEN INTERVAL | 10 FT | PID AMBIENT AIR | NA PPM | REFILL TIMER SETTING | NA SEC |
| WATER COLUMN | 8.25 FT | DRAWDOWN VOLUME (final DTW - initial DTW X well diam. squared X 0.041) | 0.082 GAL | PID WELL MOUTH | NA PPM | DISCHARGE TIMER SETTING | NA SEC |
| CALCULATED GAL/VOL (water column X well diameter$^2$ X 0.041) | 0.34 GAL | TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL) | 6.24 GAL | DRAWDOWN/ TOTAL PURGED | 0.0131 | PRESSURE TO PUMP | NA PSI |

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% and <10 ntu or 3 values <5 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1230 | BEGIN PURGING | | | | | | | | | |
| 1235 | 6.70 | ~~2700~~ | 11.19 | 0.923 | 0.99 | 7.15 | -104.2 | 62.2 | | |
| 1240 | 7.80 | | 11.42 | 0.890 | 0.24 | 7.19 | -91.8 | 33.3 | | |
| 1245 | — | — | — | — | — | — | — | ~~18.6~~ | | |
| 1250 | 7.80 | | 11.64 | 0.874 | 1.59 | 7.20 | -71.9 | 18.6 | | |
| 1255 | 7.80 | | 11.73 | 0.859 | 2.03 | 7.19 | -68.5 | 12.8 | | |
| 1300 | 7.80 | | 11.80 | 0.850 | 2.50 | 7.18 | -69.7 | 13.8 | | |
| 1305 | 7.80 | | 11.81 | 0.846 | 2.42 | 7.17 | -63.7 | 37.9 | | Turb spike, allowed to drop |
| 1330 | 7.80 | | 11.84 | 0.830 | 2.49 | 7.20 | -56.7 | 12.6 | | |
| 1335 | 7.80 | | 11.80 | 0.827 | 2.46 | 7.18 | -58.2 | 7.51 | | |
| 1340 | 7.80 | | 11.80 | 0.822 | 2.45 | 7.19 | -58.0 | 7.55 | | |
| 1345 | 7.80 | | 11.74 | 0.818 | 2.46 | 7.17 | -56.0 | 7.80 | | Stable |

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

| | | | | | | |
|---|---|---|---|---|---|---|
| | 11.7 | 0.81 | 2.5 | 7.2 | -56 | 7.5 |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ PERISTALTIC
☐ SUBMERSIBLE
☐ BLADDER
☐ WATTERA
☐ OTHER
☐ OTHER

DECON FLUIDS USED
☐ ALCONOX
☐ DEIONIZED WATER
☐ POTABLE WATER
☐ NITRIC ACID
☐ HEXANE
☐ METHANOL
☐ OTHER

TUBING/PUMP/BLADDER MATERIALS
☐ SILICON TUBING
☐ HDPE TUBING
☐ LDPE TUBING
☐ OTHER
☐ OTHER
☐ S. STEEL PUMP MATERIAL
☐ PVC PUMP MATERIAL
☐ GEOPROBE SCREEN
☐ OTHER
☐ OTHER
☐ OTHER

EQUIPMENT USED
☑ WL METER MMW-68
☐ PID
☑ WQ METER MQ15-06
☑ TURB. METER MQ22-26
☑ PUMP Peri
☐ OTHER
☐ FILTERS NO. ___ TYPE ___

ANALYTICAL PARAMETERS

| PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|
| VOC | 8260 | | N | HCl | 60mL | N |
| SVOC | 8270 | | | UNP | ~~2 HEAD~~ 2L | |
| Pesticides | 8081 | | | | 2L | |
| PCB | 8082 | | | | 2L | |
| Majors/Misc. | 6010/7470/7471 | | | HNO3 | 200mL | |
| PFAS | 537 | | ↓ | UNP | 200mL | ↓ |

PURGE OBSERVATIONS
PURGE WATER CONTAINERIZED ☑ YES ☐ NO
NO-PURGE METHOD UTILIZED ☐ YES ☐ NO
NUMBER OF GALLONS GENERATED 6.24

NOTES
1420 Pump off

Sampler Signature: [signature] Print Name: SM
Checked By: [signature] Date: 4/4/22

DEVIATIONS FROM THE WORK PLAN

REV. 3/29/2019

# LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | |
|---|---|
| PROJECT NAME | NYSDEC Remington |
| PROJECT NUMBER | 360175-DP005011 D/MS/MSD |
| SAMPLE ID | 3616216144 |
| SAMPLE TIME | 0950 |
| LOCATION ID | DP-05 |
| DATE | 3/22/22 |
| START TIME | 0842 |
| END TIME | 12:20 |
| SITE NAME/INSTALLATION | |
| PAGE | 1 OF 1 |

WELL DIAMETER (IN.): ☒ 1 ☐ 2 ☐ 4 ☐ 6 ☐ 8 ☐ OTHER

TUBING ID (INCHES): ☐ 1/8 ☒ 1/4 ☐ 3/8 ☐ 1/2 ☐ 5/8 ☐ OTHER

MEASUREMENT POINT (MP): ☐ TOP OF RISER (TOR) ☐ TOP OF CASING (TOC) ☐ OTHER

WELL INTEGRITY

| | YES | NO | N/A |
|---|---|---|---|
| CAP | X | | |
| CASING | X | | |
| LOCKED | X | | |
| COLLAR | X | | X |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| INITIAL DTW (BMP) | 7.65 FT | FINAL DTW (BMP) | 8.00 FT | PROT. CASING STICKUP (AGS) | NM FT | TOC/TOR DIFFERENCE | NM FT |
| WELL DEPTH (BMP) | 13.30 FT | SCREEN INTERVAL | 10 FT | PID AMBIENT AIR | NA PPM | REFILL TIMER SETTING | NA SEC |
| WATER COLUMN | 7.45 FT | DRAWDOWN VOLUME (final DTW- initial DTW X well diam. squared X 0.041) | 0.006 GAL | PID WELL MOUTH | NA PPM | DISCHARGE TIMER SETTING | NA SEC |
| CALCULATED GAL/VOL (water column X well diameter² X 0.041) | 0.305 GAL | TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL) | 5.91 GAL | DRAWDOWN/ TOTAL PURGED | 0.001 | PRESSURE TO PUMP | NA PSI |

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% and <10 ntu or 3 values <5 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0842 | BEGIN PURGING | | | | | | | | | |
| 0850 | 8.00 | 160 | 13.12 | 0.683 | 10.33 | 7.27 | 38.0 | 150 | | |
| 0855 | 8.05 | | 13.52 | 0.629 | 8.45 | 7.15 | 20.2 | 174 | | |
| 0900 | — | — | — | — | — | — | — | — | | Missed readings |
| 0905 | 8.00 | | 13.81 | 0.631 | 7.05 | 7.00 | 17.5 | 170 | | |
| — | — | — | Waiting for turbidity drop | | | — | — | | | |
| 0930 | 8.00 | | 13.79 | 0.651 | 7.03 | 6.74 | 5.6 | 32.8 | | |
| 0935 | 8.00 | | 13.74 | 0.651 | 7.03 | 6.73 | 5.5 | 10.4 | | |
| 0940 | 8.00 | | 13.72 | 0.651 | 6.92 | 6.73 | 6.1 | 6.56 | | |
| 0945 | 8.00 | | 13.79 | 0.649 | 6.98 | 6.73 | 6.7 | 5.28 | | |
| 1000 | Pump off | | | | | | | | | |
| | | | | | | | | | | |

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

| | | | | | | |
|---|---|---|---|---|---|---|
| | 13.8 | 0.65 | 7.00 | 6.7 | 6.7 | 5.3 |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP: ☒ PERISTALTIC ☐ SUBMERSIBLE ☐ BLADDER ☐ WATTERA ☐ OTHER ☐ OTHER

DECON FLUIDS USED: ☐ ALCONOX ☒ DEIONIZED WATER ☐ POTABLE WATER ☐ NITRIC ACID ☐ HEXANE ☐ METHANOL ☐ OTHER

TUBING/PUMP/BLADDER MATERIALS: ☒ SILICON TUBING ☐ HDPE TUBING ☐ LDPE TUBING ☐ OTHER ☐ OTHER

☐ S. STEEL PUMP MATERIAL ☐ PVC PUMP MATERIAL ☐ GEOPROBE SCREEN ☐ OTHER ☐ OTHER ☐ OTHER

EQUIPMENT USED: ☐ WL METER M2010C8 ☐ PID ☒ WQ METER AQ15-06 ☐ TURB. METER M02426 ☐ PUMP ☐ OTHER ☐ FILTERS NO. ___ TYPE ___

ANALYTICAL PARAMETERS

| PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|
| VOC | 8260 | | N | HCL | 80mL | Y |
| SVOC | 8270 | | | UNP | 2L | |
| Pesticides | 8081 | | | | 2L | |
| PCB | 8082 | | | | 2L | |
| Metals/Hg | Multi. | | | HNO3 | 500mL | |
| PFAS | 537 | | | UNP | 500mL | |

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: ☒ YES ☐ NO

NUMBER OF GALLONS GENERATED: 5.91

NO-PURGE METHOD UTILIZED: ☐ YES ☐ NO

NOTES

Sampler Signature: [signature] Print Name: S. Mead

Checked By: [signature] Date: 4/4/22

DEVIATIONS FROM THE WORK PLAN

REV. 3/29/2019

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners, NYSDEC | | | Boring ID: DP008 |
| Project Location: Irvington NY | | | Page No. 1 |
| Project No.: | Client: NYSDEC | | of: 1 |
| Boring Location: DP008 | Refusal Depth: NA | Total Depth: 15 | Bore Hole OD: 3.5 |
| Weather: Sunny, 50 | Soil Drilled: 15' | Drilling Method: Geoprobe | Casing Size: 3.5 |
| Subcontractor: Aztec/Cabella | Rock Drilled: NA | Protection Level: D | Sampler: Macrocore |
| Driller: KT | Date Started: 3/22/22 | Date Completed: 3/22/22 | Sampler ID/OD: 1.5 |
| Rig Type/Model: HC/6 expruba | Logged By: JM/ML | Checked By: | |
| Reference Elevation: NA | Water Level: 5.65 | Time: 1040 | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| | | | | | | | | 1.5" Asphalt | | |
| 0-5 | NS | 5' | NA | NA | 0.0 | | | 0-4 Br. medium SAND w/ gravels and bricks<br>4-4.5 D. Br. medium SAND w/ gravels<br>4.5-5 Tan, silty SAND, Damp | Fill/SP/SM | 3/22 0845-0900 |
| 5-10 | NS | 3' | NA | NA | 4.8<br>1.5 | | | 5-7 Tan to gray, fine silty SAND, SAT<br>7-10 SAT w/ trace gravel and 3" br. fine SAND | SM/SP | 3/22 0930 |
| 10-15 | NS | 3' | | | 0.0 | | | 10-15 Br. fine SAND, tr. silt | SM | 0945 |

NOTES: Temp well set, Scr. 3-13, Sampled for VOC + PFAS
DTW → 7.65 (TOR) Riser is ≈ 2' above ground, so adj
DTW is ≈ 5.65

# GRAB SAMPLING RECORD - WATER

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | |
|---|---|
| PROJECT NAME | NYSDEC INMS10 |
| PROJECT NUMBER | 3616216144 |
| SAMPLE ID | 360175-DP00801 |
| SAMPLE TIME | ~~1030~~ 1045 |
| LOCATION ID | DP-008 |
| DATE | 3/23/22 |
| START TIME | 1030 |
| END TIME | 1045 |
| SITE NAME/INSTALLATION | |
| PAGE | 1 OF 1 |

SAMPLE TYPE: ☑ GROUNDWATER ☐ SURFACE WATER ☐ STORM WATER ☐ DRINKING WATER ☐ PORE WATER ☐ OTHER: _____

**FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA**

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% or <10 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| ~~1035~~ | 5.65 | 200 | 10.84 | 0.839 | 8.99 | 6.99 | -160 | 870 | ~11 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)**

| | | | | | | |
|---|---|---|---|---|---|---|
| | 10.8 | 0.84 | 9.00 | 7.0 | -16 | 870 |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure (SF) max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

**EQUIPMENT DOCUMENTATION**

TYPE OF PUMP
- ☑ PERISTALTIC
- ☐ SUBMERSIBLE
- ☐ BLADDER
- ☐ PDB
- ☐ HYDRASLEEVE
- ☐ OTHER

DECON FLUIDS USED
- ☑ ALCONOX
- ☑ DEIONIZED WATER
- ☐ POTABLE WATER
- ☐ NITRIC ACID
- ☐ HEXANE
- ☐ METHANOL
- ☐ OTHER

TUBING/PUMP/BLADDER MATERIALS
- ☑ SILICON TUBING
- ☐ HDPE TUBING
- ☐ LDPE TUBING
- ☐ OTHER
- ☐ ~~OTHER~~
- ☐ S. STEEL PUMP MATERIAL
- ☐ PVC PUMP MATERIAL
- ☐ GEOPROBE SCREEN
- ☐ OTHER
- ☐ OTHER
- ☐ OTHER

EQUIPMENT USED
- ☐ WL METER A20-68
- ☐ PID
- ☐ WQ METER 1016-06
- ☐ TURB. METER M124-26
- ☐ PUMP 508-32
- ☐ OTHER
- ☐ FILTERS NO. ___ TYPE ___

**ANALYTICAL PARAMETERS**

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| ☑ | VOC | 8260 | | N | HCL | x2 40mL | N |
| | PFAS | 3537 | | N | None | 250 mL | N |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**PURGE OBSERVATIONS**

| | YES | NO |
|---|---|---|
| PURGE WATER CONTAINERIZED | ☑ | ☐ |
| NO-PURGE METHOD UTILIZED | ☐ | ☐ |

NUMBER OF GALLONS GENERATED: ~1 gal

**NOTES:**
purged ~1 gal
~~SM~~ 1" temp well, scr. 3-13 fbg

Sampler Signature: _____ Print Name: S.M

Checked By: _____ Date: 4/4/22

**DEVIATIONS FROM THE WORK PLAN:**

REV. 3/29/2019

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners SDEC | | | Boring ID: DP009 |
| Project Location: Irvington NY | | | Page No. |
| Project No.: 3616216444 | Client: NYSDEC | | of: |
| Boring Location: DP009 | Refusal Depth: 10' | Total Depth: 10' | Bore Hole OD: 3.5 |
| Weather: Cloudy, 50 | Soil Drilled: 10' | Drilling Method: DP | Casing Size: 3.5 |
| Subcontractor: AzTech Labs, Inc | Rock Drilled: NA | Protection Level: D | Sampler: Microcore |
| Driller: NJ | Date Started: 3/23/22 | Date Completed: 3/23/22 | Sampler ID/OD: 1.5" |
| Rig Type/Model: Geoprobe 7822DT | Logged By: SM | Checked By: MW | |
| Reference Elevation: NA | Water Level: 4.80 | Time: | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0-5 | | wood clear 5' | NA | - | 0.0 | NS | NS | dried brown Fine sand + silt with Trace cobbles | fill / SM | |
| 5-10 | | 3' | NA | - | 0.4 | NS | NS | 5-7 SAA<br>7-10 Damp, reddish brn silty SAND, trace gravel, SAA in bottom 2" | SM / CMST | |
| | | | | | | | | Eob @ 10'<br>large cobble encountered | | |

NOTES: After discussion w/ PM, decided to install scr, wait ~1-2 hrs and see what recharge looks like

GW VOC Sampled 1445

# GRAB SAMPLING RECORD - WATER

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | |
|---|---|
| PROJECT NAME: NYSDEC Irvington | |
| PROJECT NUMBER: 3616216144 | |
| SAMPLE ID: 360175-DP009709 | SAMPLE TIME: 1445 |
| LOCATION ID: DP009 | DATE: 3/23/22 |
| START TIME: 1080 | END TIME: 1500 |
| SITE NAME/INSTALLATION: | PAGE: 1 OF 1 |

SAMPLE TYPE: [x] GROUNDWATER [ ] SURFACE WATER [ ] STORM WATER [ ] DRINKING WATER [ ] PORE WATER [ ] OTHER: _____

**FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA**

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% or <10 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| No | Parameters | | 3/23 | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)**

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure (SF) max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

**EQUIPMENT DOCUMENTATION**

TYPE OF PUMP
- [ ] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER _____
- [ ] PDB
- [ ] HYDRASLEEVE _____
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] ALCONOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [ ] SILICON TUBING
- [ ] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [ ] WL METER MA00-65
- [ ] PID
- [ ] WQ METER MA05-04
- [ ] TURB. METER MA029-26
- [ ] PUMP SYS-35
- [ ] OTHER
- [ ] FILTERS NO. ___ TYPE _____

**ANALYTICAL PARAMETERS**

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| [x] | VOC | 8260 | | N | HCL | 80mL 2x40mL | N |
| [x] | PFAS | 537 | | N | None | 250mL | N |
| [ ] | | | | | | | |
| [ ] | | | | | | | |
| [ ] | | | | | | | |
| [ ] | | | | | | | |
| [ ] | | | | | | | |

**PURGE OBSERVATIONS**

| | YES | NO |
|---|---|---|
| PURGE WATER CONTAINERIZED | [x] | [ ] |
| NO-PURGE METHOD UTILIZED | [ ] | [ ] |

NUMBER OF GALLONS GENERATED: _____

**NOTES:**

VOC & PFAS collected @ different times

Sampler Signature: [signature] Print Name: SM

Checked By: [signature] Date: 4/4/22

**DEVIATIONS FROM THE WORK PLAN:**

No parameters due to poor recharge

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners | | | Boring ID: DP10 |
| Project Location: Irvington NY | | | Page No. 1 |
| Project No.: 3616218144 | Client: NYSDEC | | of: 1 |
| Boring Location: DP15 | Refusal Depth: 10 | Total Depth: 10' | Bore Hole OD: 3.5 |
| Weather: Clear, 50-70 | Soil Drilled: 10' | Drilling Method: HC/DP | Casing Size: 3.5 |
| Subcontractor: LaBella | Rock Drilled: NA | Protection Level: B | Sampler: Dpn |
| Driller: | Date Started: 3/23 | Date Completed: 3/23 | Sampler ID/OD: |
| Rig Type/Model: Geoprobe | Logged By: JM | Checked By: MW | |
| Reference Elevation: UNK | Water Level: | Time: | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0-5 | NS | 3' | NA→ | | 0.0 | NA | NS | 0-2 Brn, med. SAND, w/cobbles<br>2-5 Crushed stone/cobbles/rocks | Fill | |
| 5-10 | NS | 1.5' | NA | | 0.0 | NS | NA | 5-9 SAND, Damp in middle section | SP/SP | |
| | | | | | | | | 9-10 Crushed Stone | SP/SP | |
| | | | | | | | | Eob @ 10' | | |

NOTES:

Well set @ 11 ft

Sampled 1520

# GRAB SAMPLING RECORD - WATER

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | | | |
|---|---|---|---|
| PROJECT NAME: NYSDEC Irvington | | LOCATION ID: DPOW | DATE: 3/22-23/22 |
| PROJECT NUMBER: 3616216144 | | START TIME: 1500 | END TIME: 1530 |
| SAMPLE ID: 360175-DPOW09 | SAMPLE TIME: 1520 | SITE NAME/INSTALLATION: — | PAGE: 1 OF 1 |

SAMPLE TYPE: ☐ GROUNDWATER ☐ SURFACE WATER ☐ STORM WATER ☐ DRINKING WATER ☐ PORE WATER ☐ OTHER: _____

**FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA**

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% or <10 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1525 | 7.65 | ~200 | 12.35 | 1.424 | 8.82 | 7.86 | 35.3 | 800+ | ~9 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**FINAL STABILIZED FIELD PARAMETERS** (rounded to appropriate significant figures)

| | | | | | | |
|---|---|---|---|---|---|---|
| | 12.3 | 1.4 | 8.8 | 7.9 | -35 | 800+ |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure (SF) max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

**EQUIPMENT DOCUMENTATION**

TYPE OF PUMP
- ☐ PERISTALTIC
- ☐ SUBMERSIBLE
- ☐ BLADDER
- ☐ PDB
- ☐ HYDRASLEEVE
- ☐ OTHER

DECON FLUIDS USED
- ☐ ALCONOX
- ☐ DEIONIZED WATER
- ☐ POTABLE WATER
- ☐ NITRIC ACID
- ☐ HEXANE
- ☐ METHANOL
- ☐ OTHER

TUBING/PUMP/BLADDER MATERIALS
- ☐ SILICON TUBING
- ☐ HDPE TUBING
- ☐ LDPE TUBING
- ☐ OTHER
- ☐ OTHER

- ☐ S. STEEL PUMP MATERIAL
- ☐ PVC PUMP MATERIAL
- ☐ GEOPROBE SCREEN
- ☐ OTHER
- ☐ OTHER
- ☐ OTHER

EQUIPMENT USED
- ☐ WL METER: M200-68
- ☐ PID
- ☐ WQ METER: YSI-06
- ☐ TURB. METER: Hach-2
- ☐ PUMP: [redacted] MP24-20
- ☐ OTHER
- ☐ FILTERS NO. ___ TYPE ___

**ANALYTICAL PARAMETERS**

| PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|
| VOC | 8260 | Tot | N | HCL | 80mL | N |
| OFAS | 537 | | N | None | 250mL | N |

**PURGE OBSERVATIONS**

| | YES | NO |
|---|---|---|
| PURGE WATER CONTAINERIZED | ☑ | ☐ |
| NO-PURGE METHOD UTILIZED | ☐ | ☐ |

NUMBER OF GALLONS GENERATED: _____

**NOTES:**

Dump @ 8-9 FBG in boring ~3M DTW: 7.65 DTB: 11.05 Sampled

Sampler Signature: [signature] Print Name: J.M

Checked By: [signature] Date: 4/4/22

**DEVIATIONS FROM THE WORK PLAN:**

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: | Irvington ~~Arthur~~ Cleaners | | Boring ID: DPW11 |
| Project Location: | Irvington NY | | Page No. 1 |
| Project No.: | 3616216140 | Client: NYSDEC | of: 1 |
| Boring Location: | DPW11 | Refusal Depth: 9' | Total Depth: 9' |
| Weather: | Sunny, 40-50 | Soil Drilled: 9' | Drilling Method: DP |
| Subcontractor: | Cabella | Rock Drilled: NA | Protection Level: D |
| Driller: | MT | Date Started: 3/24/22 | Date Completed: 3/24/22 |
| Rig Type/Model: | MC/GP | Logged By: SM | Checked By: (MC) |
| Reference Elevation: | NA | Water Level: @ 7.5 | Time: |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0-3 | NS | 3' | NA | NA | NA | NA | NS | Light Br, fine SAND, tr. silt, w/cobbles 3-5 Crushed stone | f,u / ~~GW~~ GP | |
| 5-10 | NS | 3.5' | NA | NA | NA | NA | NS | 5-8.5 SAA, refusal @ 9' Sat. @ a 7.5-8' | GP/SP | |

NOTES:

# GRAB SAMPLING RECORD - WATER

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | |
|---|---|
| PROJECT NAME | NYSDEC Irvington |
| PROJECT NUMBER | 3616216144 |
| SAMPLE ID | 360175-DP0108 |
| SAMPLE TIME | 0745 |
| LOCATION ID | DP011 |
| DATE | 3/25/22 |
| START TIME | 0730 |
| END TIME | 0750 |
| SITE NAME/INSTALLATION | |
| PAGE | 1 OF 1 |

SAMPLE TYPE: [X] GROUNDWATER [ ] SURFACE WATER [ ] STORM WATER [ ] DRINKING WATER [ ] PORE WATER [ ] OTHER: _____

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% or <10 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0745 | 6.60 | | 9.51 | 0.355 | 9.75 | 8.08 | -49.2 | 900+ | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

| | | | | | | |
|---|---|---|---|---|---|---|
| | 9.5 | .35 | 9.7 | 8.08 | -49.2 | 900+ |

TEMP: nearest degree (ex. 10.1 = 10)
COND: 3 significant figure (SF) max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP:
[X] PERISTALTIC
[ ] SUBMERSIBLE
[ ] BLADDER
[ ] PDB
[ ] HYDRASLEEVE
[ ] OTHER

DECON FLUIDS USED:
[ ] ALCONOX
[X] DEIONIZED WATER
[ ] POTABLE WATER
[ ] NITRIC ACID
[ ] HEXANE
[ ] METHANOL
[ ] OTHER

TUBING/PUMP/BLADDER MATERIALS:
[X] SILICON TUBING
[ ] HDPE TUBING
[ ] LDPE TUBING
[ ] OTHER
[ ] OTHER

[ ] S. STEEL PUMP MATERIAL
[ ] PVC PUMP MATERIAL
[ ] GEOPROBE SCREEN
[ ] OTHER
[ ] OTHER
[ ] OTHER

EQUIPMENT USED:
[X] WL METER MACC-68
[ ] PID
[X] WQ METER MMS-176
[X] TURB. METER MHS-56
[X] PUMP SOCS-38
[ ] OTHER
[ ] FILTERS NO. ___ TYPE ___

ANALYTICAL PARAMETERS

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| [ ] | VOC | 8260 | Tot. list | N | HCl | 80mL | N |
| [ ] | | | | | | | |
| [ ] | | | | | | | |
| [ ] | | | | | | | |
| [ ] | | | | | | | |
| [ ] | | | | | | | |
| [ ] | | | | | | | |

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: [X] YES [ ] NO
NO-PURGE METHOD UTILIZED: [ ] YES [ ] NO
NUMBER OF GALLONS GENERATED: _____

NOTES:

DTW: 8.65 (2" riser)
DTB: 9.90
adj: 6.65
7.90

Sampler Signature: _____ Print Name: S. Munard
Checked: _____ Date: 4/4/22

DEVIATIONS FROM THE WORK PLAN:

REV. 3/29/2019

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners | | | Boring ID: DPW2 |
| Project Location: Irvington NY | | | Page No.: 1 |
| Project No.: 3616216M | Client: NYSDEC | | of: 1 |
| Boring Location: DPW2 | Refusal Depth: 7' | Total Depth: 7' | Bore Hole OD: 3.5 |
| Weather: Cloudy, 30-40 | Soil Drilled: 7' | Drilling Method: DP | Casing Size: 3.5 |
| Subcontractor: Labella | Rock Drilled: NA | Protection Level: D | Sampler: Macrocore |
| Driller: KT | Date Started: 3/24/22 | Date Completed: 3/24/22 | Sampler ID/OD: 1.5 |
| Rig Type/Model: HC/6 ecoprobe | Logged By: SM | Checked By: MW | |
| Reference Elevation: UNK | Water Level: ~5-6 | Time: | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0-3<br>3-5 | NS | 5' | NA | | 0.1 | NS | NS | Light br. fine SAND<br>crushed rock, damp in bottom 2" | f/M/SM | |
| 5-6 | NS | 3' | NA | | 0.0 | NS | NS | 5-7' light br. damp fine silty sand.<br>crushed rock in bottom<br>refusal @ 7'<br>Sat @ ≈5-6' | SM | |

NOTES: Screen installed, will attempt VOC Samples

# GRAB SAMPLING RECORD - WATER

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | | | |
|---|---|---|---|
| PROJECT NAME: NYSDEC Ironsten | | LOCATION ID: DP012 | DATE: 3/24/22 |
| PROJECT NUMBER: 361621614 | | START TIME: 1550 | END TIME: 1610 |
| SAMPLE ID: ~~DP~~ 360175-DP01206 | SAMPLE TIME: 1600 | SITE NAME/INSTALLATION: | PAGE: 1 OF 1 |

SAMPLE TYPE: [✓] GROUNDWATER [ ] SURFACE WATER [ ] STORM WATER [ ] DRINKING WATER [ ] PORE WATER [ ] OTHER: _____

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% or <10 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1610 | 5.50 | ~200 | 10.63 | 1.046 | 5.26 | 7.74 | 224 | 900+ | ~5 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

| | | | | | | |
|---|---|---|---|---|---|---|
| | 10.6 | 1.04 | 5.2 | 7.7 | 224 | 900+ |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure (SF) max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP:
- [✓] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] PDB
- [ ] HYDRASLEEVE
- [ ] OTHER

DECON FLUIDS USED:
- [ ] ALCONOX
- [✓] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS:
- [✓] SILICON TUBING
- [ ] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED:
- [✓] WL METER M200.68
- [ ] PID
- [✓] WQ METER MQS-626
- [✓] TURB. METER MQS-626
- [✓] PUMP 500S-35
- [ ] OTHER
- [ ] FILTERS NO. ___ TYPE ___

ANALYTICAL PARAMETERS

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| [✓] | VOC | 8260 | Tot. | N | HCl | 80mL | NA |
| [ ] | | | | | | | |
| [ ] | | | | | | | |
| [ ] | | | | | | | |
| [ ] | | | | | | | |
| [ ] | | | | | | | |
| [ ] | | | | | | | |

PURGE OBSERVATIONS

| | YES | NO |
|---|---|---|
| PURGE WATER CONTAINERIZED | [✓] | [ ] |
| NO-PURGE METHOD UTILIZED | [ ] | [ ] |

NUMBER OF GALLONS GENERATED: _____

NOTES:

DTW 4.20
DTB 5.11

Sampler Signature: [signature] Print Name: S. Marcel

Checked By: [signature] Date: 4/4/22

DEVIATIONS FROM THE WORK PLAN:

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners | | | Boring ID: DPU13 |
| Project Location: Irvington NY | | | Page No. 1 |
| Project No.: 3616216194 | Client: NYSDEC | | of: 1 |
| Boring Location: DU13 | Refusal Depth: 3 | Total Depth: 3 | Bore Hole OD: 3" |
| Weather: Cloudy, 40 | Soil Drilled: 3 | Drilling Method: HC | Casing Size: NA |
| Subcontractor: Labella | Rock Drilled: NA | Protection Level: D | Sampler: NA |
| Driller: KT | Date Started: 3/23/22 | Date Completed: 3/23/22 | Sampler ID/OD: NA |
| Rig Type/Model: HC/ | Logged By: JM | Checked By: (JM) | |
| Reference Elevation: NNK | Water Level: | Time: | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0-3 | NS | 3' | NA | | 0.0 | NS | NS | 0-3 med, Br SAND, w/ cobbles<br>Refusal @ 3' | | |

NOTES:

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners | | | Boring ID: DP017 |
| Project Location: Irvington NY | | | Page No. 1 |
| Project No.: 3616256149 | Client: NYSDEC | | of: 1 |
| Boring Location: DP017 | Refusal Depth: 9' | Total Depth: 9' | Bore Hole OD: 3.5 |
| Weather: Cloudy, 40 | Soil Drilled: 9' | Drilling Method: Direct Push | Casing Size: 3.5 |
| Subcontractor: Aztec/Labella | Rock Drilled: NA | Protection Level: D | Sampler: Macrocore |
| Driller: KT | Date Started: 3/24/22 | Date Completed: 3/24/22 | Sampler ID/OD: 1.5 |
| Rig Type/Model: Hydroprobe | Logged By: JM | Checked By: (MJ) | |
| Reference Elevation: N/A | Water Level: NA | Time: | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0-3 | | | | | | | | 0-3 Br, med SAND w/cobbles | | |
| 3-5 | NS | 3' | NA | | 0.0 | NS | NA | 3-5 Cobbles/crushed rock | Fill/GP | |
| 5-10 | | | | | | | | SAA refusal @ 9' | | |

NOTES:

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners | | | Boring ID: DP015 |
| Project Location: Irvington, NY | | | Page No.: 1 |
| Project No.: | Client: NYSDEC | | of: 1 |
| Boring Location: DP015 | Refusal Depth: 10 | Total Depth: 10' | Bore Hole OD: 3.5 |
| Weather: | Soil Drilled: 10 | Drilling Method: DP | Casing Size: 3.5 |
| Subcontractor: LaBella | Rock Drilled: N/A | Protection Level: D | Sampler: sleeve |
| Driller: Matt | Date Started: 3/23/22 | Date Completed: 3/23/22 | Sampler ID/OD: |
| Rig Type/Model: Geoprobe | Logged By: JM | Checked By: MW | |
| Reference Elevation: | Water Level: 9' | Time: | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0-5 | | 5' | - | - | 0.0 | | | HC Br. Medium SAND w/ cobbles | Fill / SP/GP | |
| 5-10 | | 3.5' | - | - | 0.0 | | | 5-8 Lt Wbn, Med to Coarse SAND w/ crushed stone<br>8-9 SAA, Damp, Satn<br>bottom 2" 9-10 Crushed stone | GP/SP<br>GP/SP<br>—<br>GP | |
| | | | | | | | | EOB @ ~~10~~ 9' | | |

NOTES: Well set @ 10-5 9-4
DTW, 9.30 DTB 9.95 2' riser (1.3'

~~8.00~~ 8.65

# GRAB SAMPLING RECORD - WATER

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | | | |
|---|---|---|---|
| PROJECT NAME: NYSDEC - Dru[illegible]hm | | LOCATION ID: DP015 | DATE: 3/23/20 |
| PROJECT NUMBER: 3616216122 | | START TIME: 1650 | END TIME: |
| SAMPLE ID: 360175-DP[illegible]8 | SAMPLE TIME: 1650 | SITE NAME/INSTALLATION: | PAGE: 1 OF 1 |

SAMPLE TYPE: [x] GROUNDWATER [ ] SURFACE WATER [ ] STORM WATER [ ] DRINKING WATER [ ] PORE WATER [ ] OTHER: _____

**FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA**

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% or <10 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)**

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |

TEMP: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure (SF) max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

**EQUIPMENT DOCUMENTATION**

TYPE OF PUMP
- [x] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER _____
- [ ] PDB
- [ ] HYDRASLEEVE
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] ALCONOX
- [x] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [x] SILICON TUBING
- [x] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [x] WL METER MJU - 45
- [ ] PID
- [x] WQ METER MU15-0W
- [x] TURB. METER [illegible] 005 - 35
- [x] PUMP mdly - 2C
- [ ] OTHER
- [ ] FILTERS NO. ____ TYPE ____

**ANALYTICAL PARAMETERS**

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| [x] | VOCS | 8260 | | N | HCL | 80 m | N |
| [x] | PFAS | 537 | | N | Ambient | 250 n | N |
| [ ] | | | | | | | |
| [ ] | | | | | | | |
| [ ] | | | | | | | |
| [ ] | | | | | | | |
| [ ] | | | | | | | |
| [ ] | | | | | | | |

**PURGE OBSERVATIONS**

PURGE WATER CONTAINERIZED: YES [x] NO [ ]
NO-PURGE METHOD UTILIZED: YES [ ] NO [ ]
NUMBER OF GALLONS GENERATED: _____

**NOTES:**

Samples collected, due to poor recharge no parameters recorded
2" s/up above ground

Sampler Signature: [signature] Print Name:
Checked By: [signature] Date: 4/4/22

**DEVIATIONS FROM THE WORK PLAN:**

no parameters

REV. 3/29/2019

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners | | Boring ID: SB06/DP16 |
| Project Location: NY | | Page No. 1 |
| Project No.: 3616216.447 | Client: WESDEC | of: 1 |
| Boring Location: DP16 | Refusal Depth: 13' | Total Depth: 13 | Bore Hole OD: 3.5 |
| Weather: Cool, 250 | Soil Drilled: 13' | Drilling Method: DP | Casing Size: 3.5 |
| Subcontractor: Cubella / AZTEC | Rock Drilled: NA | Protection Level: D | Sampler: Macrocore |
| Driller: Steven / KT | Date Started: 3/24/22 | Date Completed: 3/24/22 | Sampler ID/OD: 1.5 |
| Rig Type/Model: Geoprobe 6620DT | Logged By: JM | Checked By: (JM) | |
| Reference Elevation: UNK | Water Level: ~8-9 | Time: | |

| Drilling Information | | | | | Sample Information | | | Sample Description and Classification | USCS Classification | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | | | |
| 0-5 | NS | 5' | NA | | 0.0 | NA | N.S | 0-5 Light brown fine sand, w/ cobbles | Fill / SP | |
| 5-10 | NS | 2.5' | NA | | 0.0 | NA | N.S | 5-10 Light brown fine SAND, w/ cobbles, SAT @ 5.5' | SP | |
| 10-15 | | ~~2.3~~ 3' | NA | | 0.0 | NA | NS | ~~10-13 SM~~ 10-12' Br., medium SAND, w/cobbles | SM | |
| | | | | | | | | 12-13 Light brn, Med to coarse SAND, w/ cobbles, Crushed stone in bottom 13' | SP | |

NOTES:

# GRAB SAMPLING RECORD - WATER

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | | | |
|---|---|---|---|
| PROJECT NAME: Irving 402, NYSDEC | | LOCATION ID: DP016 | DATE: 3/25/22 |
| PROJECT NUMBER: 6861261144 | | START TIME: 0800 | END TIME: 0845 |
| SAMPLE ID: 3001125-DP016014 | SAMPLE TIME: 0830 | SITE NAME/INSTALLATION: | PAGE: 1 OF 1 |

SAMPLE TYPE: [X] GROUNDWATER [ ] SURFACE WATER [ ] STORM WATER [ ] DRINKING WATER [ ] PORE WATER [ ] OTHER: _____

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% or <10 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0830 | 6.00 | 200 | 11.50 | 4.34 | 9.04 | 9.03 | 1.3 | OR | | Overrange Turb |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

| | | | | | | |
|---|---|---|---|---|---|---|
| | 11.5 | 4.4 | 9.00 | 9.00 | 1.3 | |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure (SF) max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (34.1 = 34, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP:
[ ] PERISTALTIC
[ ] SUBMERSIBLE
[ ] BLADDER
[ ] PDB
[ ] HYDRASLEEVE
[ ] OTHER

DECON FLUIDS USED:
[ ] ALCONOX
[X] DEIONIZED WATER
[ ] POTABLE WATER
[ ] NITRIC ACID
[ ] HEXANE
[ ] METHANOL
[ ] OTHER

TUBING/PUMP/BLADDER MATERIALS:
[ ] SILICON TUBING
[ ] HDPE TUBING
[ ] LDPE TUBING
[ ] OTHER
[ ] OTHER
[ ] S. STEEL PUMP MATERIAL
[ ] PVC PUMP MATERIAL
[ ] GEOPROBE SCREEN
[ ] OTHER
[ ] OTHER
[ ] OTHER

EQUIPMENT USED:
[X] WL METER M200 68
[ ] PID
[X] WQ METER MU13 06
[X] TURB. METER MU24 26
[ ] PUMP SAM 138
[ ] OTHER
[ ] FILTERS NO. ___ TYPE ___

ANALYTICAL PARAMETERS

| PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

PURGE OBSERVATIONS

| | YES | NO |
|---|---|---|
| PURGE WATER CONTAINERIZED | [ ] | [ ] |
| NO-PURGE METHOD UTILIZED | [ ] | [ ] |

NUMBER OF GALLONS GENERATED: _____

NOTES:

GW reference unable to Secure VOAs

DTW 7.70 ⅔ adj for 1" riser
TD 13.05 ⅔

Sampler Signature: _____ Print Name: S. M

Checked By: _____ Date: 4/4/22

DEVIATIONS FROM THE WORK PLAN:

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Laundry Tex Cleaners | | | Boring ID: DPW7 |
| Project Location: Trucks in NY | | | Page No. 1 |
| Project No.: 3676256179 | Client: NYSDEC | | of: 1 |
| Boring Location: DPW7 | Refusal Depth: 14.5 | Total Depth: 14.5 | Bore Hole OD: 3.5 |
| Weather: Cloudy 30-40° | Soil Drilled: 14.5 | Drilling Method: DP | Casing Size: 3.5 |
| Subcontractor: LaBella | Rock Drilled: NA | Protection Level: D | Sampler: Macrocore |
| Driller: KF | Date Started: 3/24/22 | Date Completed: 3/24/22 | Sampler ID/OD: 1.5 |
| Rig Type/Model: HC/DP | Logged By: SM | Checked By: (AW) | |
| Reference Elevation: UNK | Water Level: ≈ 9-10 | Time: | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0-5 | - | | | - | 0.0 | NA | - | Lt Br. Brn SAND, w/ cobbles | F, N | |
| 5-10 | - | | | - | 6.0 | NA | - | 5-10, ~~gray, dense~~ gray-brn, dense f-m SAND, tr silt, w/ gravel, damp in bottom 2" | GP/SP | |
| 10-14 | - | | | - | 0.0 | NA | | reddish-brn, c. SAND, tr. silt, SAT @ ≈ 9-10 ftbg | GP/SP | |
| | | | | | | | | Refusal @ 14.5 | | |
| | | | | | | | | Scr 14-4 | | |

NOTES:

# GRAB SAMPLING RECORD - WATER

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | |
|---|---|
| PROJECT NAME | NYSDEC Irvington |
| PROJECT NUMBER | 3616216147 |
| SAMPLE ID | 3E0175-DP017014 |
| SAMPLE TIME | 0870 |
| LOCATION ID | DP017 |
| DATE | 3/25/20 |
| START TIME | 0800 |
| END TIME | 0815 |
| SITE NAME/INSTALLATION | |
| PAGE | 1 OF 1 |

SAMPLE TYPE: ☒ GROUNDWATER ☐ SURFACE WATER ☐ STORM WATER ☐ DRINKING WATER ☐ PORE WATER ☐ OTHER: _____

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% or <10 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0815 | 10.00 | ~200 | 11.46 | 1.525 | 8.87 | 7.64 | 5.7 | 874 | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

| | | | | | | |
|---|---|---|---|---|---|---|
| | 11.5 | 1.5 | 8.9 | 7.6 | 5.7 | 874 |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure (SF) max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- ☒ PERISTALTIC
- ☐ SUBMERSIBLE
- ☐ BLADDER
- ☐ PDB
- ☐ HYDRASLEEVE
- ☐ OTHER

DECON FLUIDS USED
- ☐ ALCONOX
- ☒ DEIONIZED WATER
- ☐ POTABLE WATER
- ☐ NITRIC ACID
- ☐ HEXANE
- ☐ METHANOL
- ☐ OTHER

TUBING/PUMP/BLADDER MATERIALS
- ☒ SILICON TUBING
- ☐ HDPE TUBING
- ☐ LDPE TUBING
- ☐ OTHER
- ☐ OTHER

- ☐ S. STEEL PUMP MATERIAL
- ☐ PVC PUMP MATERIAL
- ☐ GEOPROBE SCREEN
- ☐ OTHER
- ☐ OTHER
- ☐ OTHER

EQUIPMENT USED
- ☒ WL METER M200-68
- ☐ PID
- ☒ WQ METER M015-00
- ☒ TURB METER M034-20
- ☒ PUMP Solo 75
- ☐ OTHER
- ☐ FILTERS NO ___ TYPE ___

ANALYTICAL PARAMETERS

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| ☐ | | | | | | | |
| ☐ | | | | | | | |
| ☐ | | | | | | | |
| ☐ | | | | | | | |
| ☐ | | | | | | | |
| ☐ | | | | | | | |
| ☐ | | | | | | | |

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: ☒ YES ☐ NO
NUMBER OF GALLONS GENERATED: _____
NO-PURGE METHOD UTILIZED: ☐ YES ☐ NO

NOTES:

DTW 9.00
DTB 14.28

Sampler Signature: [signature] Print Name: J. M

Checked By: _____ Date: _____

DEVIATIONS FROM THE WORK PLAN:

**D.3.2**
**GROUNDWATER SAMPLING**
**MAY 2022**

# GRAB SAMPLING RECORD - WATER

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| PROJECT NAME | | LOCATION ID | DATE |
|---|---|---|---|
| NYSDEC IRVINGTON CLEANERS | | DAC 8 | 6/24/22 |
| **PROJECT NUMBER** | | **START TIME** | **END TIME** |
| 3616216144 | | 1440 | 1448 |
| **SAMPLE ID** | **SAMPLE TIME** | **SITE NAME/INSTALLATION** | **PAGE** |
| ~~D3A36475-~~DAC08041 | 1440 | Irvington Cleaners | 1 OF 1 |

SAMPLE TYPE: [X] GROUNDWATER [ ] SURFACE WATER [ ] STORM WATER [ ] DRINKING WATER [ ] PORE WATER [ ] OTHER: _____

**FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QPP)**

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% and <10 ntu or 3 values <5 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1440 | TOR 8.430 | ~200 | 18.35 | 0.995 | 9.40 | 6.29 | 144.3 | OR | ~11' | OR: overrange |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| | | | | | | | | | | |

**FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)**

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure (SF) max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

**EQUIPMENT DOCUMENTATION**

TYPE OF PUMP
- [ ] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER _____
- [ ] PDB
- [ ] HYDRASLEEVE
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] ALCONOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [ ] SILICON TUBING
- [ ] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [ ] WL METER _____
- [ ] PID _____
- [ ] WQ METER _____
- [ ] TURB. METER _____
- [ ] PUMP _____
- [ ] OTHER _____
- [ ] FILTERS NO. ___ TYPE _____

**ANALYTICAL PARAMETERS**

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| X | VOCs | 8260 | | N | HCL | x3 40ml | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**PURGE OBSERVATIONS**

PURGE WATER CONTAINERIZED: YES [X] NO [ ]
NUMBER OF GALLONS GENERATED: ~.25
NO-PURGE METHOD UTILIZED: YES [ ] NO [ ]

**NOTES:**
TOR to ground: 1'
Scr 5-15, Sand 4-3', Bent to 3.5, Sand dry

Sampler Signature: [signature] Print Name: J. Minard

Checked By: C Staples Date: 6/24/22

**DEVIATIONS FROM THE WORK PLAN:**

# GRAB SAMPLING RECORD - WATER

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | |
|---|---|
| PROJECT NAME: NYSDEC IRVINGTON CLEANERS | |
| PROJECT NUMBER: 3616216144 | |
| SAMPLE ID: 360175-DP01009 | SAMPLE TIME: 1645 |
| LOCATION ID: DP-10 | DATE: 6/24/22 |
| START TIME: 1645 | END TIME: 1650 |
| SITE NAME/INSTALLATION: Irvington Cleaners | PAGE: 1 OF 1 |

SAMPLE TYPE: [X] GROUNDWATER [ ] SURFACE WATER [ ] STORM WATER [ ] DRINKING WATER [ ] PORE WATER [ ] OTHER: _____

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QPP)

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% and <10 ntu or 3 values <5 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1645 | TOR 8.10 | ≤200 | — | — | — | — | — | — | ≈9 | Not run through cell |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure (SF) max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] PDB
- [ ] HYDRASLEEVE
- [ ] OTHER

DECON FLUIDS USED
- [X] ALCONOX
- [X] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [ ] WL METER
- [ ] PID
- [ ] WQ METER
- [ ] TURB. METER
- [ ] PUMP
- [ ] OTHER
- [ ] FILTERS NO. ___ TYPE ___

ANALYTICAL PARAMETERS

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| X | VOCs | 8260 | | N | HCL | x3 40ml | |

PURGE OBSERVATIONS

| | YES | NO |
|---|---|---|
| PURGE WATER CONTAINERIZED | X | |
| NO-PURGE METHOD UTILIZED | | |

NUMBER OF GALLONS GENERATED: ≤25

NOTES: Scr. 10-1, sand to grade
TOR to gr. = 5.5'

Sampler Signature: [signature] Print Name: J. Munard

Checked By: C Staples Date: 6/24/22

DEVIATIONS FROM THE WORK PLAN:

# GRAB SAMPLING RECORD - WATER

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | |
|---|---|
| PROJECT NAME: NYSDEC IRVINGTON CLEANERS | LOCATION ID: OP-11 / DATE: 6/25/22 |
| PROJECT NUMBER: 3616216144 | START TIME: 1430 / END TIME: 1445 |
| SAMPLE ID: B60175-PR0406008 (SA OP-11) / SAMPLE TIME: 1430 | SITE NAME/INSTALLATION: Irvington Cleaners / PAGE: 1 OF 1 |

SAMPLE TYPE: ☐ GROUNDWATER ☐ SURFACE WATER ☐ STORM WATER ☐ DRINKING WATER ☐ PORE WATER ☐ OTHER: _____

**FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QPP)**

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% and <10 ntu or 3 values <5 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1430 | 9.30 | ≈200 | — | — | — | — | — | — | ≈8 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| | | | | | | | | | | |

**FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)**

| | | | | | | |
|---|---|---|---|---|---|---|
| | — | — | — | — | — | — |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure (SF) max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

**EQUIPMENT DOCUMENTATION**

TYPE OF PUMP
- ☐ PERISTALTIC
- ☐ SUBMERSIBLE
- ☐ BLADDER _____
- ☐ PDB
- ☐ HYDRASLEEVE _____
- ☐ OTHER _____

DECON FLUIDS USED
- ☑ ALCONOX
- ☑ DEIONIZED WATER
- ☐ POTABLE WATER
- ☐ NITRIC ACID
- ☐ HEXANE
- ☐ METHANOL
- ☐ OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- ☑ SILICON TUBING
- ☑ HDPE TUBING
- ☐ LDPE TUBING
- ☐ OTHER _____
- ☐ OTHER _____

- ☐ S. STEEL PUMP MATERIAL
- ☐ PVC PUMP MATERIAL
- ☐ GEOPROBE SCREEN
- ☐ OTHER _____
- ☐ OTHER _____
- ☐ OTHER _____

EQUIPMENT USED
- ☐ WL METER _____
- ☐ PID _____
- ☐ WQ METER _____
- ☐ TURB. METER _____
- ☐ PUMP _____
- ☐ OTHER _____
- ☐ FILTERS NO. ____ TYPE _____

**ANALYTICAL PARAMETERS**

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| X | VOCs | 8260 | | N | HCL | x3 40ml | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**PURGE OBSERVATIONS**

| | YES | NO |
|---|---|---|
| PURGE WATER CONTAINERIZED | X | |
| NO-PURGE METHOD UTILIZED | | |

NUMBER OF GALLONS GENERATED: ≈.25

NOTES: Scr. & 40 gr, Sand 20 gr. Tor to gr. ≈2.'

DEVIATIONS FROM THE WORK PLAN:

Samplor Signature: [signature] Print Name: S. Mundi

Checked By: C Staples Date: 6/24/22

REV. 3/29/2019

# GRAB SAMPLING RECORD - WATER

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| PROJECT NAME | | LOCATION ID | DATE |
|---|---|---|---|
| Irvington Rugs and Cleaners | | DP-012 | 5/26/2022 |
| **PROJECT NUMBER** | | **START TIME** | **END TIME** |
| 3616216144 | | 1000 | 1020 |
| **SAMPLE ID** | **SAMPLE TIME** | **SITE NAME/INSTALLATION** | **PAGE** |
| 360175-DP01206 | 1010 | | 1 OF 1 |

**SAMPLE TYPE:** [X] GROUNDWATER [ ] SURFACE WATER [ ] STORM WATER [ ] DRINKING WATER [ ] PORE WATER [ ] OTHER: _____

**FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE FAP)**

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% and <10 ntu or 3 values <5 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1010 | collect sample. | No Parameters | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| **FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)** | | | | | | | | | | |
| | | | | | | | | | | |

**TEMP.**: nearest degree (ex. 10.1 = 10)
**COND.**: 3 significant figure (SF) max (ex. 1.686 = 1.69)
**pH**: nearest tenth (ex. 5.53 = 5.5)
**DO**: nearest tenth (ex. 3.51 = 3.5)
**TURB**: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
**ORP**: 2 SF (44.1 = 44, 191 = 190)

**EQUIPMENT DOCUMENTATION**

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] PDB
- [ ] HYDRASLEEVE
- [ ] OTHER

DECON FLUIDS USED
- [ ] ALCONOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [ ] SILICON TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [X] WL METER
- [ ] PID
- [ ] WQ METER
- [ ] TURB. METER
- [ ] PUMP
- [ ] OTHER
- [ ] FILTERS NO. ____ TYPE ____

**ANALYTICAL PARAMETERS**

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| X | VOCS | 8260 | | No | HCL | 40 ml | No |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**PURGE OBSERVATIONS**

PURGE WATER CONTAINERIZED: YES [X] NO [ ]
NUMBER OF GALLONS GENERATED: _____
NO-PURGE METHOD UTILIZED: YES [ ] NO [ ]

**NOTES:**

Installed temporary well on 5/25 at 1411-1537. Boring installed to 6 ft below ground.
Well was dry when installed - left overnight to recharge.

**Josh Minardi**

Sampler Signature: Print Name: Josh Minardi

Checked By: C. Staples Date: 6/23/2023

**DEVIATIONS FROM THE WORK PLAN:**

# GRAB SAMPLING RECORD - WATER

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| PROJECT NAME | | LOCATION ID | DATE |
|---|---|---|---|
| NYSDEC IRVINGTON CLEANERS | | OP-15 | 5/24/22 |
| PROJECT NUMBER | | START TIME | END TIME |
| 3616216144 | | 1700 | 1710 |
| SAMPLE ID: DP-360175-OP015010-052422 | SAMPLE TIME: 1700 | SITE NAME/INSTALLATION: Irvington Cleaners | PAGE: 1 OF 1 |

SAMPLE TYPE: [X] GROUNDWATER [ ] SURFACE WATER [ ] STORM WATER [ ] DRINKING WATER [ ] PORE WATER [ ] OTHER: _____

**FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QPP)**

| TIME | DTW (FT) TOR | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% and <10 ntu or 3 values <5 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1700 | 6.70 | 200 | — | — | — | — | — | — | 10 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)**

| | | | | | | |
|---|---|---|---|---|---|---|
| | — | — | — | — | — | — |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure (SF) max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

**EQUIPMENT DOCUMENTATION**

TYPE OF PUMP
- [ ] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] PDB
- [ ] HYDRASLEEVE
- [ ] OTHER

DECON FLUIDS USED
- [ ] ALCONOX
- [X] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [ ] WL METER
- [ ] PID
- [ ] WQ METER
- [ ] TURB. METER
- [ ] PUMP
- [ ] OTHER
- [ ] FILTERS NO. ___ TYPE ___

**ANALYTICAL PARAMETERS**

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| X | VOCs | 8260 | | N | HCL | x3 40ml | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**PURGE OBSERVATIONS**

| | YES | NO |
|---|---|---|
| PURGE WATER CONTAINERIZED | X | |
| NO-PURGE METHOD UTILIZED | | |

NUMBER OF GALLONS GENERATED: 2.25

NOTES: Scr. 9-gr., Sand 9 gr.
TOR flush w/ ground.

Sampler Signature: [signature] Print Name: J. Minard

Checked By: C Staples Date: 6/24/22

DEVIATIONS FROM THE WORK PLAN:

# GRAB SAMPLING RECORD - WATER

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | |
|---|---|
| PROJECT NAME: NYSDEC IRVINGTON CLEANERS | LOCATION ID: DP-16 / DATE: 5/29/22 |
| PROJECT NUMBER: 3616216144 | START TIME: 1722 / END TIME: 1728 |
| SAMPLE ID: 360178-DP016012 / SAMPLE TIME: 1722 | SITE NAME/INSTALLATION: Irvington Cleaners / PAGE: 1 OF 1 |

SAMPLE TYPE: [X] GROUNDWATER [ ] SURFACE WATER [ ] STORM WATER [ ] DRINKING WATER [ ] PORE WATER [ ] OTHER: _____

**FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QPP)**

| TIME | DTW (FT) TOR | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% and <10 ntu or 3 values <5 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1722 | 12.05 | ≈200 | — | — | — | — | — | — | ≈12 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| | | | | | | | | | | |

**FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)**

| | | | | | | |
|---|---|---|---|---|---|---|
| | — | — | — | — | — | — |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure (SF) max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

**EQUIPMENT DOCUMENTATION**

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] PDB
- [ ] HYDRASLEEVE
- [ ] OTHER

DECON FLUIDS USED
- [X] ALCONOX
- [X] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER
- [ ] OTHER
- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [ ] WL METER
- [ ] PID
- [ ] WQ METER
- [ ] TURB. METER
- [ ] PUMP
- [ ] OTHER
- [ ] FILTERS NO. ___ TYPE ___

**ANALYTICAL PARAMETERS**

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| X | VOCs | 8260 | | N | HCL | x3 40ml | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**PURGE OBSERVATIONS**

PURGE WATER CONTAINERIZED: YES [X] NO [ ]
NO-PURGE METHOD UTILIZED: YES [ ] NO [ ]
NUMBER OF GALLONS GENERATED: ≈.25

NOTES: Scr. 12-2, Send to grade
90R to gr. ≈2

Sampler Signature: [signature] Print Name: S. Minor

Checked By: C Staples Date: 6/24/22

DEVIATIONS FROM THE WORK PLAN:

# GRAB SAMPLING RECORD - WATER

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | |
|---|---|
| PROJECT NAME | NYSDEC IRVINGTON CLEANERS |
| PROJECT NUMBER | 3616216144 |
| SAMPLE ID | B60175-DP01012 |
| SAMPLE TIME | 1700-1745 |
| LOCATION ID | DP-1517 |
| DATE | 6/25/22 |
| START TIME | DM 1700-1745 |
| END TIME | 5M 1710-1760 |
| SITE NAME/INSTALLATION | Irvington Cleaners |
| PAGE | OF |

SAMPLE TYPE: [X] GROUNDWATER [ ] SURFACE WATER [ ] STORM WATER [ ] DRINKING WATER [ ] PORE WATER [ ] OTHER: _____

**FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QPP)**

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% and <10 ntu or 3 values <5 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1745 ~~1700~~ | ~~3~~ TOR 6.70 | ~200 | | | | | | | ≈11.50 | not run through CCN |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)**

| | | | | | | |
|---|---|---|---|---|---|---|
| | — | — | — | — | — | — |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure (SF) max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

**EQUIPMENT DOCUMENTATION**

TYPE OF PUMP
- [ ] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] PDB
- [ ] HYDRASLEEVE
- [ ] OTHER

DECON FLUIDS USED
- [X] ALCONOX
- [X] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [ ] WL METER
- [ ] PID
- [ ] WQ METER
- [ ] TURB. METER
- [ ] PUMP
- [ ] OTHER
- [ ] FILTERS NO. ___ TYPE

**ANALYTICAL PARAMETERS**

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| X | VOCs | 8260 | | N | HCL | x3 40ml | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**PURGE OBSERVATIONS**

PURGE WATER CONTAINERIZED: YES [X] NO [ ]
NO-PURGE METHOD UTILIZED: YES [ ] NO [ ]
NUMBER OF GALLONS GENERATED: ≈.25

NOTES: SCR. 12-2, Sand pack
DM B TOR to ground. ≈2.6

Sampler Signature: [signature] Print Name: J. Menard

Checked By: C Staples Date: 6/24/22

DEVIATIONS FROM THE WORK PLAN:

**D.3.3**
**GROUNDWATER SAMPLING**
**JUNE 2022**

# FIELD INSTRUMENT CALIBRATION RECORD

PROJECT NAME: NYSDEC Binghamton Cleaners
PROJECT NUMBER: 36162614
PROJECT LOCATION: Binghamton NY
WEATHER CONDITIONS (AM): Sunny, 65
WEATHER CONDITIONS (PM): Sunny 65

TASK NO: 02 DATE: 6/14/22
MACTEC CREW: S. Mancuso
SAMPLER NAME:
SAMPLER SIGNATURE:
CHECKED BY: DATE: 6/28/22

## MULTI-PARAMETER WATER QUALITY METER

METER TYPE YSI
MODEL NO. 556 MPS
UNIT ID NO. M015-07

AM CALIBRATION Start Time 0810 /End Time 0830

POST CALIBRATION CHECK Start Time 1155 /End Time 1208

| | Units | Standard Value | Meter Value | *Acceptance Criteria (AM) | Standard Value | Meter Value | *Acceptance Criteria (PM) |
|---|---|---|---|---|---|---|---|
| pH (4) | SU | 4.0 | 4.00 | +/- 0.1 pH Units | | | |
| pH (7) | SU | 7.0 | 7.01 | +/- 0.1 pH Units | 7.0 | 7.00 | +/- 0.3 pH Units |
| pH (10) | SU | 10.0 | — | +/- 0.1 pH Units | | | |
| Redox | +/- mV | 240 | 240 | +/- 10 mV | 240 | 238 | +/- 10 mV |
| Conductivity | mS/cm | 1.413 | 1.413 | +/- 0.5 % of standard | 1.413 | 1.413 | +/- 5% of standard |
| DO (saturated) | % | 100 | 98.2 | +/- 2% of standard | | | |
| DO (saturated) | mg/L[1] (see Chart 1) | 9.35 | 9.40 | +/- 0.2 mg/L | 7.6 | 8.0 | +/- 0.5 mg/L of standard |
| DO (<0.1) | mg/L | <0.1 | — | < 0.5 mg/L | | | |
| Temperature | °C | | 17.3 | | | 30.25 | |
| Baro. Press. | mmHg | | 766.1 | | | 766.1 | |

## TURBIDITY METER

METER TYPE Hach
MODEL NO. 2100Q
UNIT ID NO. M024-29

| | Units | Standard Value | Meter Value | Standard Value | Meter Value | *Acceptance Criteria (PM) |
|---|---|---|---|---|---|---|
| <0.1 Standard | NTU | 10 <0.1 | 8.92 | 10 <0.1 | 10.2 | +/- 0.3 NTU of stan. |
| 20 Standard | NTU | 20 | 20.1 | 20 | 21.1 | +/- 5% of standard |
| 100 Standard | NTU | 100 | 101 | 100 | 108 | +/- 5% of standard |
| 800 Standard | NTU | 800 | 795 | 800 | 802 | +/- 5% of standard |

## PHOTOIONIZATION DETECTOR

METER TYPE NA
MODEL NO.
UNIT ID NO.

| | Units | Standard Value | Meter Value | Standard Value | Meter Value | *Acceptance Criteria (PM) |
|---|---|---|---|---|---|---|
| Background | ppmv | <0.1 | | <0.1 | | within 5 ppmv of BG |
| Span Gas | ppmv | 100 | | 100 | | +/- 10% of standard |

## $O_2$-LEL 4 GAS METER

METER TYPE NA
MODEL NO.
UNIT ID NO.

| | Units | Standard Value | Meter Value | Standard Value | Meter Value | *Acceptance Criteria (PM) |
|---|---|---|---|---|---|---|
| Methane | % | 50 | | 50 | | +/- 10% of standard |
| $O_2$ | % | 20.9 | | 20.9 | | +/- 10% of standard |
| $H_2S$ | ppmv | 25 | | 25 | | +/- 10% of standard |
| CO | ppmv | 50 | | 50 | | +/- 10% of standard |

## OTHER METER

METER TYPE
MODEL NO.
UNIT ID NO.

See Notes Below for Additional Information

☑ Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.
☐ Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above**.

## MATERIALS RECORD

**Deionized Water Source:** Portland FOS
**Lot#/Date Produced:**
**Trip Blank Source:** Laboratory provided
**Sample Preservatives Source:** Laboratory provided
**Disposable Filter Type:** in-line 0.45µm cellulose
**Calibration Fluids / Standard Source:**
- DO Calibration Fluid (<0.1 mg/L) Portland FOS
- Other
- Other
- Other

| | Cal. Standard Lot Number | Exp. Date |
|---|---|---|
| pH (4) | 164614 | 23-Nov |
| pH (7) | 165124 | 23-Oct |
| pH (10) | — | — |
| ORP | 164536 | 22-Aug |
| Conductivity | 165479 | 22-Oct |
| <0.1 Turb. Stan. | A2040 | 7/23 |
| 20 Turb. Stan. | A2015 | 6/23 |
| 100 Turb. Stan. | A2034 | 5/23 |
| 800 Turb. Stan. | A2091 | 7/23 |
| PID Span Gas | — | — |
| $O_2$-LEL Span Gas | — | — |
| Other | — | — |

**NOTES:**

* = Unless otherwise noted, calibration procedures and acceptance criteria are in general accordance with USEPA Region 1 SOPs for Field Instrument Calibration (EQASOP-FieldCalibrat) and Low Stress Purging and Sampling (EQASOP-GW001), each dated 1/19/2010. Additonal acceptance criteria obtained from instrument specific manufacturer recommendations.
** = If meter reading is not within acceptance criteria, clean/replace probe and re-calibrate, or use calibrated back-up meter if available. If project requirements necessitate use of the instrument, clearly document any deviations from acceptance criteria on all data sheets and log book entries.
1 = DO Saturated standard value is calculated based on Oxygen Solubility at Indicated Pressure Chart from the USEPA Region 1 SOP for Field Instrument Calibration (EQASOP-FieldCalibrat), dated 1/19/2010.

MACTEC
511 Congress Street Portland Maine 04101

FIELD INSTRUMENT CALIBRATION RECORD

# LOW-FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | |
|---|---|
| PROJECT NAME | NYSDEC Irvington |
| PROJECT NUMBER | 3616236144 |
| SAMPLE ID | 360175-DP020U |
| SAMPLE TIME | 1200 |
| LOCATION ID | DP-02 |
| DATE | 6/14/22 |
| START TIME | 1050 |
| END TIME | 1210 |
| SITE NAME/INSTALLATION | — |
| PAGE | 1 OF 1 |

WELL DIAMETER (IN.): ☐ 1 ☐ 2 ☑ 4 ☐ 6 ☐ 8 ☐ OTHER

TUBING ID (INCHES): ☐ 1/8 ☑ 1/4 ☐ 3/8 ☐ 1/2 ☐ 5/8 ☐ OTHER

MEASUREMENT POINT (MP): ☑ TOP OF RISER (TOR) ☐ TOP OF CASING (TOC) ☐ OTHER

WELL INTEGRITY

| | YES | NO | N/A |
|---|---|---|---|
| CAP | ✓ | | |
| CASING | ✓ | | |
| LOCKED | | | ✓ |
| COLLAR | ✓ | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| INITIAL DTW (BMP) | 3.65 FT | FINAL DTW (BMP) | 3.70 FT | PROT. CASING STICKUP (AGS) | NA FT | TOC/TOR DIFFERENCE | NM FT |
| WELL DEPTH (BMP) | 12.15 FT | SCREEN INTERVAL | 10 FT | PID AMBIENT AIR | NA PPM | REFILL TIMER SETTING | NA SEC |
| WATER COLUMN | 8.50 FT | DRAWDOWN VOLUME (final DTW - initial DTW X well diam. squared X 0.041) | 0.002 GAL | PID WELL MOUTH | NA PPM | DISCHARGE TIMER SETTING | NA SEC |
| CALCULATED GAL/VOL (water column X well diameter² X 0.041) | 0.35 GAL | TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL) | 2.50 GAL | DRAWDOWN/ TOTAL PURGED | 0.0008 | PRESSURE TO PUMP | NA PSI |

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% and <10 ntu or 3 values <5 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1050 | BEGIN PURGING | | | | | | | | | |
| 1140 | 3.70 | 150 | 17.67 | 0.751 | 3.98 | 6.96 | 46.8 | 5.25 | | |
| 1145 | 3.70 | | 14.56 | 0.718 | 4.23 | 6.93 | 48.2 | 5.04 | | |
| 1150 | 3.70 | | 17.25 | 0.698 | 4.03 | 6.91 | 49.7 | 4.88 | | |
| 1155 | 3.70 | | 17.11 | 0.696 | 3.98 | 6.90 | 47.9 | 4.22 | | |
| 1200 | | | | | | | | | | |

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

| | | | | | | |
|---|---|---|---|---|---|---|
| | 17.1 | 0.70 | 3.0 | 6.9 | 48 | 4.2 |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- ☑ PERISTALTIC
- ☐ SUBMERSIBLE
- ☐ BLADDER
- ☐ WATTERA
- ☐ OTHER
- ☐ OTHER

DECON FLUIDS USED
- ☑ ALCONOX
- ☑ DEIONIZED WATER
- ☐ POTABLE WATER
- ☐ NITRIC ACID
- ☐ HEXANE
- ☐ METHANOL
- ☐ OTHER

TUBING/PUMP/BLADDER MATERIALS
- ☑ SILICON TUBING
- ☐ HDPE TUBING
- ☐ LDPE TUBING
- ☐ OTHER
- ☐ OTHER
- ☐ S. STEEL PUMP MATERIAL
- ☐ PVC PUMP MATERIAL
- ☐ GEOPROBE SCREEN
- ☐ OTHER
- ☐ OTHER
- ☐ OTHER

EQUIPMENT USED
- ☐ WL METER M200-67
- ☐ PID
- ☑ WQ METER AQUA-07
- ☑ TURB. METER AQUA-39
- ☐ PUMP
- ☐ OTHER
- ☐ FILTERS NO. ___ TYPE ___

ANALYTICAL PARAMETERS

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| ☑ | PFAS | 537 | — | — | None | 250 mL | — |

PURGE OBSERVATIONS

| | YES | NO |
|---|---|---|
| PURGE WATER CONTAINERIZED | ☑ | ☐ |
| NO-PURGE METHOD UTILIZED | ☐ | ☐ |

NUMBER OF GALLONS GENERATED: 2.5

NOTES

Sampler Signature: [signature] Print Name: SSM

Checked By: [signature] Date: 6/28/22

DEVIATIONS FROM THE WORK PLAN

REV. 3/29/2019

# LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | | | |
|---|---|---|---|
| PROJECT NAME: NSDEC Irvington | | LOCATION ID: MW-030 | DATE: 6/14/22 |
| PROJECT NUMBER: 3616256144 | | START TIME: 1019 | END TIME: 1140 |
| SAMPLE ID: 360175-MW003D020 | SAMPLE TIME: 1130 | SITE NAME/INSTALLATION: | PAGE: 1 OF 1 |

WELL DIAMETER (IN.): ☑ 1 ☐ 2 ☐ 4 ☐ 6 ☐ 8 ☐ OTHER

TUBING ID (INCHES): ☐ 1/8 ☑ 1/4 ☐ 3/8 ☐ 1/2 ☐ 5/8 ☐ OTHER

MEASUREMENT POINT (MP): ☐ T ORISER (TOR) ☑ TOP OF CASING (TOC) ☐ OTHER

WELL INTEGRITY

| | YES | NO | N/A |
|---|---|---|---|
| CAP | ✓ | | |
| CASING | ✓ | | |
| LOCKED | | | ✓ |
| COLLAR | ✓ | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| INITIAL DTW (BMP) | 9.20 FT | FINAL DTW (BMP) | 9.35 FT | PROT. CASING STICKUP (AGS) | NA FT | TOC/TOR DIFFERENCE | NA FT |
| WELL DEPTH (BMP) | 25.95 FT | SCREEN INTERVAL | 10 FT | PID AMBIENT AIR | NA PPM | REFILL TIMER SETTING | NA SEC |
| WATER COLUMN | 16.75 FT | DRAWDOWN VOLUME (final DTW- initial DTW X well diam. squared X 0.041) | 0.006 GAL | PID WELL MOUTH | NA PPM | DISCHARGE TIMER SETTING | NA SEC |
| CALCULATED GAL/VOL (water column X well diameter² X 0.041) | 0.69 GAL | TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL) | 8.91 GAL | DRAWDOWN/ TOTAL PURGED | 0.0002 | PRESSURE TO PUMP | NA PSI |

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. O₂ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% and <10 ntu or 3 values <5 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1019 | BEGIN PURGING | | | | | | | | | |
| 1055 | 9.35 | 130 | 16.78 | 0.847 | 4.22 | 7.21 | 7.9 | 2.95 | | |
| 1100 | 9.35 | | 17.26 | 0.844 | 4.12 | 7.20 | 11.4 | 2.08 | | |
| 1105 | 9.35 | | 17.56 | 0.845 | 4.14 | 7.21 | 19.0 | 1.58 | | |
| 1110 | 9.35 | | 17.43 | 0.845 | 4.12 | 7.20 | 24.8 | 1.02 | | |
| 1115 | 9.35 | | 17.26 | 0.845 | 4.22 | 7.19 | 32.7 | 1.01 | | |
| 1120 | 9.35 | | 17.20 | 0.846 | 4.15 | 7.19 | 35.3 | 1.00 | | |
| 1125 | 9.35 | | 17.10 | 0.847 | 4.23 | 7.20 | 35.8 | 0.88 | | |
| 1130 | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

| | | | | | | |
|---|---|---|---|---|---|---|
| | 17 | 0.85 | 4.2 | 7.2 | 36 | 0.9 |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max. nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (-14.1 = -14, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- ☑ PERISTALTIC
- ☐ SUBMERSIBLE
- ☐ BLADDER
- ☐ WATTERA
- ☐ OTHER
- ☐ OTHER

DECON FLUIDS USED
- ☑ ALCONOX
- ☑ DEIONIZED WATER
- ☐ POTABLE WATER
- ☐ NITRIC ACID
- ☐ HEXANE
- ☐ METHANOL
- ☐ OTHER

TUBING/PUMP/BLADDER MATERIALS
- ☑ SILICON TUBING
- ☐ HDPE TUBING
- ☐ LDPE TUBING
- ☐ OTHER
- ☐ OTHER

- ☐ S. STEEL PUMP MATERIAL
- ☐ PVC PUMP MATERIAL
- ☐ GEOPROBE SCREEN
- ☐ OTHER
- ☐ OTHER
- ☐ OTHER

EQUIPMENT USED
- ☑ WL METER MP20-67
- ☐ PID
- ☑ WQ METER MP520-67
- ☑ TURB. METER MP200-67
- ☐ PUMP
- ☐ OTHER
- ☐ FILTERS NO. TYPE

ANALYTICAL PARAMETERS

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| ✓ | PFAS | 537 | — | — | None | 250 mL | — |

PURGE OBSERVATIONS

| | YES | NO |
|---|---|---|
| PURGE WATER CONTAINERIZED | ✓ | |
| NO-PURGE METHOD UTILIZED | | |

NUMBER OF GALLONS GENERATED: 291

NOTES:

Sampler Signature: [signature] Print Name: JSM

Checked By: [signature] Date: 6/28/22

DEVIATIONS FROM THE WORK PLAN:

REV. 3/29/2019

# LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | | | |
|---|---|---|---|
| PROJECT NAME: Irvington, NYSDEC | | LOCATION ID: DP-04 | DATE: 6/14/22 |
| PROJECT NUMBER: 3616216144 | | START TIME: ~~0755~~ 0810 | END TIME: 1045 |
| SAMPLE ID: DP04-360175-DP06402 | SAMPLE TIME: 1035 | SITE NAME/INSTALLATION: | PAGE: 1 OF 1 |

WELL DIAMETER (IN.): ☑ 1 ☐ 2 ☐ 4 ☐ 6 ☐ 8 ☐ OTHER

TUBING ID (INCHES): ☐ 1/8 ☑ 1/4 ☐ 3/8 ☐ 1/2 ☐ 5/8 ☐ OTHER

MEASUREMENT POINT (MP): ☐ TOP OF RISER (TOR) ☐ TOP OF CASING (TOC) ☐ OTHER

WELL INTEGRITY

| | YES | NO | N/A |
|---|---|---|---|
| CAP | ✓ | | |
| CASING | ✓ | | |
| LOCKED | | | ✓ |
| COLLAR | ✓ | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| INITIAL DTW (BMP) | 5.95 FT | FINAL DTW (BMP) | 7.05 FT | PROT. CASING STICKUP (AGS) | NA FT | TOC/TOR DIFFERENCE | NM FT |
| WELL DEPTH (BMP) | 14.05 FT | SCREEN INTERVAL | 10 FT | PID AMBIENT AIR | NA PPM | REFILL TIMER SETTING | NA SEC |
| WATER COLUMN | 8.1 FT | DRAWDOWN VOLUME (final DTW - initial DTW X well diam. squared X 0.041) | 0.065 GAL | PID WELL MOUTH | NA PPM | DISCHARGE TIMER SETTING | NA SEC |
| CALCULATED GAL/VOL (water column X well diameter² X 0.041) | 0.35 GAL | TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL) | ~~5.09~~ 5.64 GAL | DRAWDOWN/ TOTAL PURGED | 0.011 | PRESSURE TO PUMP | NA PSI |

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% and <10 ntu or 3 values <5 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| SM 0810 | | | | | | | | | | |
| ~~0755~~ | | | BEGIN PURGING | | | | | | | |
| 1015 | 7.05 | 150 | 16.55 | 0.888 | 1.71 | 7.01 | -100.9 | 5.17 | | |
| 1020 | 7.05 | | 16.46 | 0.863 | 1.67 | 7.01 | -95.2 | 4.26 | | |
| 1025 | 7.05 | | 16.36 | 0.845 | 1.69 | 7.02 | -92.1 | 4.12 | | |
| 1030 | 7.05 | | 16.47 | 0.840 | 1.68 | 7.02 | -88.9 | 3.99 | | |
| 1035 | 7.05 | | 16.46 | 0.830 | 1.71 | 7.02 | -86.9 | 3.28 | | |
| 1040 | | | | | | | | | | |
| 1045 | | | | | | | | | | |
| 1050 | | | | | | | | | | |

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

| | | | | | |
|---|---|---|---|---|---|
| | 16 | 0.83 | 1.7 | 7.0 | -87 | 3.3 |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max. nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (-44.1 = -44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- ☑ PERISTALTIC
- ☐ SUBMERSIBLE
- ☐ BLADDER
- ☐ WATTERA
- ☐ OTHER
- ☐ OTHER

DECON FLUIDS USED
- ☐ ALCONOX
- ☐ DEIONIZED WATER
- ☐ POTABLE WATER
- ☐ NITRIC ACID
- ☐ HEXANE
- ☐ METHANOL
- ☐ OTHER

TUBING/PUMP/BLADDER MATERIALS
- ☑ SILICON TUBING
- ☐ HDPE TUBING
- ☐ LDPE TUBING
- ☐ OTHER
- ☐ OTHER

- ☐ S. STEEL PUMP MATERIAL
- ☐ PVC PUMP MATERIAL
- ☐ GEOPROBE SCREEN
- ☐ OTHER
- ☐ OTHER
- ☐ OTHER

EQUIPMENT USED
- ☑ WL METER M20 - 67
- ☐ PID
- ☑ WQ METER M45-07
- ☑ TURB METER M29-62
- ☐ PUMP
- ☐ OTHER
- ☐ FILTERS NO ___ TYPE ___

ANALYTICAL PARAMETERS

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| ✓ | PFAS | 537 | — | — | — | 250mL | — |

PURGE OBSERVATIONS

| | YES | NO |
|---|---|---|
| PURGE WATER CONTAINERIZED | ✓ | |
| NO-PURGE METHOD UTILIZED | | |

NUMBER OF GALLONS GENERATED: 5.64

NOTES: Tubing replaced, possible product observed

Sampler Signature: Print Name: SSM

Checked By: Date: 6/28/22

DEVIATIONS FROM THE WORK PLAN

REV. 3/29/2019

# LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | |
|---|---|
| PROJECT NAME | Irving |
| PROJECT NUMBER | 3M 3616 216144 |
| SAMPLE ID | DP05 360175-DP05SW11 |
| SAMPLE TIME | 0953 |
| LOCATION ID | DP05 |
| START TIME | 0752 0810 0752 |
| SITE NAME/INSTALLATION | — |
| DATE | 6/14/22 |
| END TIME | 1003 |
| PAGE | 1 OF 1 |

WELL DIAMETER (IN.): ☒ 1 ☐ 2 ☐ 4 ☐ 6 ☐ 8 ☐ OTHER

TUBING ID (INCHES): ☐ 1/8 ☒ 1/4 ☐ 3/8 ☐ 1/2 ☐ 5/8 ☐ OTHER

MEASUREMENT POINT (MP): ☐ TOP OF RISER (TOR) ☐ TOP OF CASING (TOC) ☐ OTHER

WELL INTEGRITY

| | YES | NO | N/A |
|---|---|---|---|
| CAP | ✓ | | |
| CASING | | | |
| LOCKED | | | ✓ |
| COLLAR | ✓ | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| INITIAL DTW (BMP) | 6.90 FT | FINAL DTW (BMP) | 8.00 FT | PROT. CASING STICKUP (AGS) | NM FT | TOC/TOR DIFFERENCE | JM +0 FT |
| WELL DEPTH (BMP) | 15.30 FT | SCREEN INTERVAL | 10 FT | PID AMBIENT AIR | NA PPM | REFILL TIMER SETTING | NA SEC |
| WATER COLUMN | 8.4 FT | DRAWDOWN VOLUME (final DTW- initial DTW X well diam. squared X 0.041) | 0.345 GAL | PID WELL MOUTH | NA PPM | DISCHARGE TIMER SETTING | NA SEC |
| CALCULATED GAL/VOL (water column X well diameter$^2$ X 0.041) | 0.347 GAL | TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL) | 4.09 GAL | DRAWDOWN/ TOTAL PURGED | 0.011 | PRESSURE TO PUMP | NA PSI |

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

| TIME 0752 0810 | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% and <10 ntu or 3 values <5 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0752 | BEGIN PURGING | | | | | | | | | |
| 0908 | 8.00 | 120 | 17.20 | 0.693 | 6.26 | 6.95 | 109.5 | 270 | | |
| 0913 | 8.00 | | 17.20 | 0.693 | 4.64 | 6.96 | 108.4 | 170 | | |
| 0918 | 8.00 | | 17.19 | 0.693 | 4.04 | 6.97 | 107.8 | 112 | | |
| 0923 | 8.00 | | 17.23 | 0.693 | 3.80 | 6.97 | 106.3 | 81.4 | | |
| 0928 | | | 17.21 | 0.695 | 3.61 | 6.98 | 102.7 | 77.3 | | |
| SM 0933 | — | — | — | — | — | — | — | — | | Wait for turb to settle |
| 0943 0936 | 8.00 | | 17.24 | 0.695 | 3.34 | 6.99 | 99.6 | 23.3 | | |
| 0948 | 8.00 | | 17.26 | 0.696 | 3.34 | 6.99 | 99.2 | 23.6 | | |
| 0953 | 8.00 | | 17.26 | 0.695 | 3.30 | 6.99 | 98.7 | 23.1 | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

| | | | | | | |
|---|---|---|---|---|---|---|
| | 17 | 0.69 | 3.3 | 7.0 | 99 | 23.1 |

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max. nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- ☒ PERISTALTIC
- ☐ SUBMERSIBLE
- ☐ BLADDER
- ☐ WATTERA
- ☐ OTHER
- ☐ OTHER

DECON FLUIDS USED
- ☐ ALCONOX
- ☐ DEIONIZED WATER
- ☐ POTABLE WATER
- ☐ NITRIC ACID
- ☐ HEXANE
- ☐ METHANOL
- ☐ OTHER

TUBING/PUMP/BLADDER MATERIALS
- ☐ SILICON TUBING
- ☐ HDPE TUBING
- ☐ LDPE TUBING
- ☐ OTHER
- ☐ OTHER

- ☐ S. STEEL PUMP MATERIAL
- ☐ PVC PUMP MATERIAL
- ☐ GEOPROBE SCREEN
- ☐ OTHER
- ☐ OTHER
- ☐ OTHER

EQUIPMENT USED
- ☒ WL METER Mar-67
- ☐ PID
- ☒ WQ METER Ser-07
- ☒ TURB METER Ser-21
- ☐ PUMP
- ☐ OTHER
- ☐ FILTERS NO. ___ TYPE ___

ANALYTICAL PARAMETERS

| PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|
| PFAS | 537 | — | — | None | 250mL | 360175-DP05SW11-D/MS/MSD |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: ☒ YES ☐ NO

NUMBER OF GALLONS GENERATED: 4.09

NO-PURGE METHOD UTILIZED: ☐ YES ☐ NO

NOTES

Sampler Signature: Print Name: SM

Checked By: Date: 6/28/22

DEVIATIONS FROM THE WORK PLAN

REV. 3/29/2019

**D.3.4**
**GROUNDWATER SAMPLING**
**MARCH 2024**

# LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC
511 Congress Street
Suite 200
Portland, Maine 04101

| | | | |
|---|---|---|---|
| PROJECT NAME: NYSDEC Irvington | | LOCATION ID: DP-04 | DATE: 3/5/24 |
| PROJECT NUMBER: 3616216144.02 | | START TIME: 1152 | END TIME: 1245 |
| SAMPLE ID: 360175-DP004012 | SAMPLE TIME: 1245 | SITE NAME/INSTALLATION: Irvington R&C | PAGE: 1 OF 1 |

WELL DIAMETER (IN.): [X] 1 [ ] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER
TUBING ID (INCHES): [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER
MEASUREMENT POINT (MP): [X] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

| WELL INTEGRITY | YES | NO | N/A |
|---|---|---|---|
| CAP | ✓ | | |
| CASING | ✓ | | ✓ |
| LOCKED | ✓ | | ✓ |
| COLLAR | ✓ | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| INITIAL DTW (BMP) | 4.44 FT | FINAL DTW (BMP) | 6.05 FT | PROT. CASING STICKUP (AGS) | NA FT | TOC/TOR DIFFERENCE | 1.55 FT |
| WELL DEPTH (BMP) | 13.98 FT | SCREEN INTERVAL | 10 FT | PID AMBIENT AIR | NA PPM | REFILL TIMER SETTING | NA SEC |
| WATER COLUMN | 9.54 FT | DRAWDOWN VOLUME (final DTW- initial DTW X well diam. squared X 0.041) | 0.0660 GAL | PID WELL MOUTH | NA PPM | DISCHARGE TIMER SETTING | NA SEC |
| CALCULATED GAL/VOL (water column X well diameter² X 0.041) | 0.391 GAL | TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL) | 1.791 GAL | DRAWDOWN/ TOTAL PURGED | 0.0368 | PRESSURE TO PUMP | NA PSI |

**FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA**

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% or <10 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1152 | BEGIN PURGING | | | | | | | | | |
| 1200 | 6.30 | 130 | 10.4 | 0.620 | 4.13 | 7.03 | -96.1 | NA | ~12 | |
| 1205 | 6.03 | 130 | 10.6 | 0.571 | 7.46 | 7.32 | -99.0 | 11.5 | ~12 | |
| 1210 | 6.02 | 130 | 10.6 | 0.564 | 7.80 | 7.34 | -101.4 | 17.0 | ~12 | |
| 1215 | 6.02 | 130 | 10.6 | 0.564 | 8.20 | 7.37 | -105.7 | 11.04 | ~12 | |
| 1220 | 6.03 | 130 | 10.5 | 0.553 | 8.89 | 7.43 | -111.5 | 18.2 | ~12 | |
| 1225 | 6.03 | 130 | 10.4 | 0.550 | 9.11 | 7.45 | -112.4 | 16.9 | ~12 | |
| 1230 | 6.04 | 130 | 10.4 | 0.550 | 9.25 | 7.46 | -112.6 | 16.0 | ~12 | |
| 1235 | 6.05 | 130 | 10.4 | 0.547 | 9.36 | 7.48 | -113.1 | 16.8 | ~12 | |
| 1245 | sample | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)**

| | | | | | | |
|---|---|---|---|---|---|---|
| 10 | 0.547 | 9.4 | 7.5 | -110 | 16.8 | |

TEMP: nearest degree (ex. 10.1 = 10)
COND: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

**EQUIPMENT DOCUMENTATION**

TYPE OF PUMP: [X] PERISTALTIC [ ] SUBMERSIBLE [ ] BLADDER [ ] WATTERA [ ] OTHER [ ] OTHER
DECON FLUIDS USED: [X] ALCONOX [X] DEIONIZED WATER [ ] POTABLE WATER [ ] NITRIC ACID [ ] HEXANE [ ] METHANOL [ ] OTHER
TUBING/PUMP/BLADDER MATERIALS: [X] SILICON TUBING [X] HDPE TUBING [ ] LDPE TUBING [ ] OTHER [ ] OTHER
[ ] S. STEEL PUMP MATERIAL [ ] PVC PUMP MATERIAL [ ] GEOPROBE SCREEN [ ] OTHER [ ] OTHER [ ] OTHER
EQUIPMENT USED: [X] WL METER FA04023 [ ] PID [X] WQ METER FA013550 [X] TURB. METER FA013557 [X] PUMP MicroPump FA03466 [ ] OTHER [ ] FILTERS NO. ___ TYPE ___

**ANALYTICAL PARAMETERS**

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| [X] | PFAS | 1633 | PFAS | N | None | 500 mL x 2<br>125 mL | Yes.<br>MS/MSD. |
| | | | | | | 500mL x 2, 125 mL | MS |
| | | | | | | 500mL x 2, 125 mL | MSD |

**PURGE OBSERVATIONS**

PURGE WATER CONTAINERIZED: [X] YES [ ] NO
NO-PURGE METHOD UTILIZED: [ ] YES [ ] NO
NUMBER OF GALLONS GENERATED: ~1.8

**NOTES**

MS, MSD collected. MS: 360175-DP004012MS
MSD: 360175-DP004012MSD

Sampler Signature: MerMcBenny Print Name: MERILL MCBENNY
Checked By: Date:

**DEVIATIONS FROM THE WORK PLAN**

REV. 3/29/2019

# LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

| | |
|---|---|
| PROJECT NAME | NYSDEC Irvington |
| PROJECT NUMBER | 3646216144.02 |
| SAMPLE ID | 360175-MW003D027 |
| SAMPLE TIME | 1545 |
| LOCATION ID | MW-3D |
| DATE | 3/8/24 |
| START TIME | 1445 |
| END TIME | 1540 |
| SITE NAME/INSTALLATION | Irvington R&C |
| PAGE | 1 OF 1 |

WELL DIAMETER (IN.): [X] 1 [ ] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER
TUBING ID (INCHES): [ ] 1/8 [ ] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER
MEASUREMENT POINT (MP): [X] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

| | YES | NO | N/A |
|---|---|---|---|
| CAP | ✓ | | |
| CASING | ✓ | | |
| LOCKED | | | ✓ |
| COLLAR | ✓ | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| INITIAL DTW (BMP) | 9.10 FT | FINAL DTW (BMP) | 9.41 FT | PROT. CASING STICKUP (AGS) | NA FT | TOC/TOR DIFFERENCE | 0.17 FT |
| WELL DEPTH (BMP) | 25.9 FT | SCREEN INTERVAL | 10 FT | PID AMBIENT AIR | NA PPM | REFILL TIMER SETTING | NA SEC |
| WATER COLUMN | 16.8 FT | DRAWDOWN VOLUME (final DTW- initial DTW X well diam. squared X 0.041) | 0.0127 GAL | PID WELL MOUTH | NA PPM | DISCHARGE TIMER SETTING | NA SEC |
| CALCULATED GAL/VOL (water column X well diameter² X 0.041) | 0.68 GAL | TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL) | 3.57 GAL | DRAWDOWN/ TOTAL PURGED | 0.0035 | PRESSURE TO PUMP | NA PSI |

**FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA**

| TIME | DTW (FT) | PURGE RATE (mL/min) | TEMP. (°C) ±3% | SP. CONDUCTANCE (mS/cm) ±3% | DISS. $O_2$ (mg/L) ±10% or 3 values <0.5 mg/L | pH (units) ±0.1 | REDOX (mv) ±10 mv | TURBIDITY (ntu) ±10% or <10 ntu | PUMP INTAKE DEPTH (ft) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1445 | BEGIN PURGING | | | | | | | | | |
| 1455 | 9.38 | 250 | 13.4 | 0.584 | 4.37 | 7.31 | -47.7 | 2.16 | 24.9 | |
| 1500 | 9.39 | 250 | 13.4 | 0.586 | 4.10 | 7.30 | -52.0 | 1.87 | 24.9 | |
| 1505 | 9.40 | 250 | 13.5 | 0.588 | 4.06 | 7.29 | -10.9 | 2.19 | 24.9 | |
| 1510 | 9.40 | 250 | 13.5 | 0.589 | 3.97 | 7.29 | 80.3 | 1.12 | 24.9 | |
| 1515 | 9.40 | 250 | 13.4 | 0.591 | 3.88 | 7.29 | 81.5 | 1.19 | 24.9 | |
| 1520 | 9.41 | 250 | 13.4 | 0.592 | 4.03 | 7.29 | 62.6 | 1.16 | 24.9 | |
| 1525 | 9.41 | 250 | 13.5 | 0.593 | 3.97 | 7.29 | 67.6 | 0.96 | 24.9 | |
| 1530 | 9.41 | 250 | 13.5 | 0.594 | 3.94 | 7.29 | 78.1 | 0.49 | 24.9 | |
| 1535 | 9.42 | 250 | 13.5 | 0.596 | 3.96 | 7.29 | 79.4 | 1.31 | 24.9 | |
| 1540 | 9.41 | 250 | 13.4 | 0.597 | 3.96 | 7.29 | 84.3 | 0.69 | 24.9 | |
| | | | | | | | | | | |

**FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)**

| | | | | | | |
|---|---|---|---|---|---|---|
| | 13 | 0.597 | 4.0 | 7.3 | 84 | 0.7 |

TEMP: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

**EQUIPMENT DOCUMENTATION**

TYPE OF PUMP: [X] PERISTALTIC [ ] SUBMERSIBLE [ ] BLADDER [ ] WATTERA [ ] OTHER [ ] OTHER

DECON FLUIDS USED: [X] ALCONOX [X] DEIONIZED WATER [ ] POTABLE WATER [ ] NITRIC ACID [ ] HEXANE [ ] METHANOL [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS: [X] SILICON TUBING [X] HDPE TUBING [ ] LDPE TUBING [ ] OTHER [ ] OTHER; [ ] S. STEEL PUMP MATERIAL [ ] PVC PUMP MATERIAL [ ] GEOPROBE SCREEN [ ] OTHER [ ] OTHER [ ] OTHER

EQUIPMENT USED: [X] WL METER FA04028 [ ] PID [X] WQ METER FA03186 [X] TURB. METER FA00857 [X] PUMP FA02466 [ ] OTHER [ ] FILTERS NO. ___ TYPE ___

**ANALYTICAL PARAMETERS**

| | PARAMETER | METHOD NUMBER | ANALYTE LIST | FIELD FILTERED | PRESERVATION METHOD (NA) | VOLUME REQUIRED | QC COLLECTED |
|---|---|---|---|---|---|---|---|
| [X] | PFAS | 1633 | PFAS | N | 500mL x2 | | NO |
| | | | | | 125 mL | | |

**PURGE OBSERVATIONS**

PURGE WATER CONTAINERIZED: [X] YES [ ] NO
NUMBER OF GALLONS GENERATED: ~35
NO-PURGE METHOD UTILIZED: [ ] YES [ ] NO

NOTES

Sampler Signature: Meril M Benny Print Name: MERIL M BENNY

Checked By: Date:

DEVIATIONS FROM THE WORK PLAN

REV. 3/29/2019

DUP-03082024

# D.4
# SOIL SAMPLING

**D.4.1**
**SOIL SAMPLING**
**SEPTEMBER 2022**

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Rugs and Cleaners | | | Boring ID: SB01 |
| Project Location: Irvington, NY | | | Page No. 1 |
| Project No.: 3616216144 Client: NYSDEC | | | of: 1 |
| Boring Location: SB-001 | Refusal Depth: NA | Total Depth: 2.0ft bgs | Bore Hole OD: 4" |
| Weather: 69°f | Soil Drilled: 2.0ft bgs | Drilling Method: Hang Auger | Casing Size: NA |
| Subcontractor: NA | Rock Drilled: NA | Protection Level: Level D | Sampler: M.Benny |
| Driller: M.Benny, J.Feng | Date Started: 9/27/22 | Date Completed: 9/27/22 | Sampler ID/OD: 4" |
| Rig Type/Model: Hang Auger | Logged By: M.Benny | Checked By: R.Dugal | |
| Reference Elevation: Ground surface | Water Level: NA | Time: 1345 | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0 - | | | | | | | | Asphalt | | |
| 3 in | | | | | | | | | | |
| 0.0 | | | | | | | | Brown, damp, sandy soil with well graded gravel<br>360175-SB001-0.17 | SW | |
| 0.17 ft | | | | | | | | Dark and light brow sandy soil with well graded gravel (>1/8") | SW | |
| 0.17 ft | | | | | | | | 360175-SB001-1.0 | | |
| 1.0 ft | | | | | | | | gray-light brown poorly graded gravelly sand (coarse) | SP-SM | |
| 2.0 ft | | | | | | | | | | |

NOTES:
Sample time 1438

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Rugs and Cleanes | | | Boring ID: SB-2 |
| Project Location: Irvington, NY | | | Page No. 1 |
| Project No.: 3616216144 | Client: NYSDEC | | of: 1 |
| Boring Location: SB-002 | Refusal Depth: NA | Total Depth: 2.0ft bgs | Bore Hole OD: 4" |
| Weather: 68°f | Soil Drilled: 2.0ft bgs | Drilling Method: Hand Auger | Casing Size: NA |
| Subcontractor: NA | Rock Drilled: NA | Protection Level: Level D | Sampler: M.Benny |
| Driller: M.Benny, J.Feng | Date Started: 9/27/22 | Date Completed: 9/27/22 | Sampler ID/OD: 4" |
| Rig Type/Model: Hang Auger | Logged By: M.Benny | Checked By: R.Dugal | |
| Reference Elevation: Ground surface | Water Level: NA | Time: 1300 | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0 | | | | | | | | Asphalt | | |
| 3" / 0 | | | | | | | | Brown sandy soil with poorly graded gravel., damp soil. low plasticity. | SP | |
| 0.17 ft | | | | | | | | Darker brown sandy soil with P well graded gravel. moist low plasticity | SW | |
| 1.0 ft | | | | | | | | Darker brown sandy soil with well graded gravel moist low plasticity | SW | |
| 2.0 | | | | | | | | | | |

NOTES: 1430 Sample time 1330.

# SOIL BORING LOG

**MACTEC**
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Rugs and Cleaners | | | Boring ID: SB-003 |
| Project Location: Irvington | | | Page No. 1 |
| Project No.: 3616216144 | Client: NYSDEC | | of: 1 |
| Boring Location: SB-03 | Refusal Depth: 2.4ft bgs | Total Depth: 2.4ft bgs | Bore Hole OD: 4" |
| Weather: 59° f | Soil Drilled: 2.4ft bgs | Drilling Method: Hand Auger | Casing Size: NA |
| Subcontractor: NA | Rock Drilled: NA | Protection Level: Level D | Sampler: M. Benny |
| Driller: Jack Feng / Merril Benny | Date Started: 09/27/22 | Date Completed: 9/27/22 | Sampler ID/OD: 4" |
| Rig Type/Model: Hand Auger / Geoprobe | Logged By: M. Benny | Checked By: R. Dugal | |
| Reference Elevation: Ground surface | Water Level: NA | Time: 1050 | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0 | | | | | | | | Asphalt drilled / cored through | | |
| 3 in | | | | | | | | | | |
| 0 | | | | | | | | well graded gravel, brown moist soil coarse sand, subangular gravel 360175-SB00B-0.17 well graded gravel with sand | GW | |
| 0.17 ft | | | | | | | | well graded soil and gravel brown, moist, with 3in cobbles low plasticity. well graded gravel with sand 360175-SB003-1.0 | GW | |
| 1.0 | | | | | | | | Brown, moist sand soil with some well graded gravel; low plasticity, white shell like particles. 360175-SB003-2.0 | SW | |
| 2.0 | | | | | | | | | | |

NOTES: unable to get past 2ft 5", unable to take 6ft sample.

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Rugs and Cleaners | | | Boring ID: SB-004 |
| Project Location: Irvington, NY | | | Page No. 1 |
| Project No.: 3616216144 Client: NYSDEC | | | of: 1 |
| Boring Location: SB-04 | Refusal Depth: NA | Total Depth: 2.0ft bgs | Bore Hole OD: 4" |
| Weather: 59° f | Soil Drilled: 2.0ft bgs | Drilling Method: Hand Auger | Casing Size: NA |
| Subcontractor: NA | Rock Drilled: NA | Protection Level: Level D | Sampler: M. Benny |
| Driller: Jack Fung / MMB | Date Started: 9/27/22 | Date Completed: 9/27/22 | Sampler ID/OD: 4" |
| Rig Type/Model: Hang Auger. | Logged By: M. Benny | Checked By: R. Dugal | |
| Reference Elevation: Ground Surface | Water Level: NA | Time: 930 | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| ft | | | | | | | | | | |
| 0 | | | | | | | 0 - 0.17 | GP poorly graded gravel, gravel sand mixtures, low plasticity, moist soft., brown<br>360175-SB004-0.17, D | GP | Dupe collected |
| 0.17 | | | | | | | 0.17 - 1.0 | sandy, poorly graded gravel moist, brown and lighter brown soil soft. low plasticity.<br>360175-SB004-1.0, MS, MD | GP | MS, MD collected. |
| 1.0 | | | | | | | 1.0 - 20 | brown, Well graded sandy gravel, moist silty grovel, gravel, sand silt mixture. Shell like white particles. ~~roots~~ ~~forms~~ can form ~~it~~ ~~to~~ ~~ball~~ into a ball.<br>360175-SB0042.0 | GM | |
| 20 | | | | | | | | | | |

NOTES:

Sample time 1000 Duplicate sample taken (0.17)
MS, MD samples taken (@1.0)

**D.4.2**
**SOIL SAMPLING**
**OCTOBER 2023**

Sampler:

# SOIL BORING LOG

**MACTEC**
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington cleaners | | | Boring ID: SB-1A |
| Project Location: Irvington NY | | | Page No. 1 |
| Project No.: 3616216144 | Client: NYSDEC | | of: 1 |
| Boring Location: Irvington Cleaners Driveway | Refusal Depth: NA | Total Depth: 6' | Bore Hole OD: 3" |
| Weather: Sunny, 60s | Soil Drilled: 6 | Drilling Method: DirectPush | Casing Size: 3" |
| Subcontractor: La Bella | Rock Drilled: NA | Protection Level: D | Sampler: Macrocore |
| Driller: Austin/Austin | Date Started: 10/18/23 | Date Completed: 10/18/23 | Sampler ID/OD: 1.5" |
| Rig Type/Model: 6610 DT | Logged By: JM | Checked By: | |
| Reference Elevation: ~NA | Water Level: @ 5½-6' | Time: | |

| Drilling Information | | | | | Sample Information | | | Sample Description and Classification | USCS Classification | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | | | |
| 0-3 | | 2' | | | | | | 1-1.52 D. Br 4u br. fine SAND, w gravel<br>1.52-3 Tannish-br. fine SAND, w/ gravel, ~~brth~~ brick pcs/ftl | | |
| 3-6 | | 2½ | | | | | | 3-4. Br. fine SAND, w/ gravel + coal ash<br>4-6 Br. fine to Med. SAND w/ gravel, SAT @ 5.5 brick dust/ashy @ 5.7-5.10 | | |

NOTES:

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners | | | Boring ID: SB-2A |
| Project Location: Irvington NY | | | Page No.: 1 |
| Project No.: 3616161144 | Client: NYSDEC | | of: 1 |
| Boring Location: Irvington Cleaners Driveway | Refusal Depth: N/A | Total Depth: 6' | Bore Hole OD: 3" |
| Weather: Sunny, 60s | Soil Drilled: 6' | Drilling Method: Direct Push | Casing Size: 3" |
| Subcontractor: LaBella | Rock Drilled: NA | Protection Level: D | Sampler: Macrocore |
| Driller: Austin/Austin | Date Started: 10/18/23 | Date Completed: 10/18/23 | Sampler ID/OD: 1.5" |
| Rig Type/Model: 6610DT | Logged By: SM | Checked By: | |
| Reference Elevation: UNK | Water Level: UNK | Time: | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0-3 | | 0-2.7ft | | | | | | 2" Asphalt<br>2"-1' fill material brown, fine-med SAND, w/ angular pebbles<br>1'-3' Br fine SAND, w/ cobbles<br>wood ash band @ 2.5'-2.7' | | |
| 3-6 | | 2.5' | | | | | | 3-3.5 ~~6"~~ 5in SAA w/ brick material<br>3.5-6 Br fine SAND, lr silt. | | |

NOTES:

# SOIL BORING LOG

**MACTEC**
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners | | | Boring ID: SB-3A |
| Project Location: Irvington, NY | | | Page No. 1 |
| Project No.: 3616216144 | Client: NYSDEC | | of: 1 |
| Boring Location: Irvington Cleaners Backyard | Refusal Depth: NA | Total Depth: 6' | Bore Hole OD: 3" |
| Weather: Sunny, 60s | Soil Drilled: 6' | Drilling Method: DirectPush | Casing Size: 3" |
| Subcontractor: La Bella | Rock Drilled: NA | Protection Level: D | Sampler: Macrocore |
| Driller: Austin/Austin | Date Started: 10/18/23 | Date Completed: 10/18/23 | Sampler ID/OD: 1.5" |
| Rig Type/Model: 6610 DT | Logged By: JM | Checked By: | |
| Reference Elevation: UNK | Water Level: ~6' | Time: | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0-3 | | 1.9' | | | | | | 0-5" Asphalt to ~~brown~~ Tannish Brown fine SAND, w/ gravel<br>5" - 3' Tannish - brown fine SAND w/ gravel | | |
| 3-6 | | 2' | | | | | | 3-3.2" SAA, ~~no~~ SM<br>3.2-3.4 Yellow fine SAND, w/ gravel<br>3.4-6 D. Br. fine SAND, Damp w/ cobbles + gravel, ~~brick~~ in bottom 2" brick dust<br>SAT @ 6' | | |

NOTES:

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners | | | Boring ID: SB-4 |
| Project Location: Irvington, NY | | | Page No. 1 |
| Project No.: 3616216144 | Client: NYSDEC | | of: 1 |
| Boring Location: 8 N. Dutcher Courtyard | Refusal Depth: NA | Total Depth: 6' | Bore Hole OD: 3" |
| Weather: Sunny, 60's | Soil Drilled: 6 | Drilling Method: Direct Push | Casing Size: 3" |
| Subcontractor: La Bella | Rock Drilled: NA | Protection Level: D | Sampler: Macrocore |
| Driller: Aus4in / Aus4in | Date Started: 10/18/23 | Date Completed: 10/18/23 | Sampler ID/OD: 1.5" |
| Rig Type/Model: 420M | Logged By: JM | Checked By: | |
| Reference Elevation: UNK | Water Level: UNK | Time: | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0-3 | | 1.8' | | | | | | 0-1.5 Br. fine to med SAND, w/ gravel, tr. org<br>1.5-3 Br. F.ne SAND, w/ gravel | | |
| 3-6 | | 1.6' | | | | | | ~~3-3.5~~ SAA<br>3-5 SAA, tr. silt<br>5-6 gray, silty SAND, Damp | | |

NOTES:

# SOIL BORING LOG

**MACTEC**
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners | | | Boring ID: ~~36014~~ SB-5 |
| Project Location: Irvington, NY | | | Page No. 1 |
| Project No.: 3616261449 | Client: NYSDEC | | of: 1 |
| Boring Location: Irvington Cleaners Driveway | Refusal Depth: ~~6~~ NA | Total Depth: 6' | Bore Hole OD: 3" |
| Weather: Sunny, 60's | Soil Drilled: ~~NA~~ 6 | Drilling Method: Direct Push | Casing Size: 3" |
| Subcontractor: La Bella | Rock Drilled: NA | Protection Level: D | Sampler: Macrocore |
| Driller: Austin/Austin | Date Started: 10/18/23 | Date Completed: 10/18/23 | Sampler ID/OD: 1.5 |
| Rig Type/Model: 6610 DT | Logged By: M Barry JMirandi | Checked By: | 36017-SB-5-6 |
| Reference Elevation: CNK | Water Level: ~> 6' | Time: ~~0900~~ PM | |

| Drilling Information | | | | | Sample Information | | | Sample Description and Classification | USCS Classification | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | | | |
| 0-2" | | 0-2.9A | | | | | | asphalt | | |
| 2"-3' | | 2.9' | | | | | | Br. to med br. fine SAND, layer of black charcoal material @ 1.2-1.4. Dump - Brick @ 3' | | |
| 3-6 | | 2.3' | | | | | | 3-3.5 Br., fine to med. SAND, Dump, w/ brick chunks<br>3.5-6 ~~Br. fine sand~~ PM Tannish, Br., fine SAND, Sat, tr silt | | |

NOTES:

# SOIL BORING LOG

**MACTEC**
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners | | | Boring ID: SB-6 |
| Project Location: Irvington NY | | | Page No. 1 |
| Project No.: 3616216144 | Client: NYSDEC | | of: 1 |
| Boring Location: 8 N. Dutcher Courts | Refusal Depth: NA | Total Depth: 6' | Bore Hole OD: 3" |
| Weather: Sunny, 60s | Soil Drilled: 6 | Drilling Method: Direct Push | Casing Size: 3" |
| Subcontractor: Labella | Rock Drilled: NA | Protection Level: D | Sampler: Macrocore |
| Driller: Austin/Austin | Date Started: 10/18/23 | Date Completed: 10/18/23 | Sampler ID/OD: 1.5" |
| Rig Type/Model: 420M | Logged By: JM | Checked By: | |
| Reference Elevation: UNK | Water Level: UNK | Time: | |

| Drilling Information | | | | | Sample Information | | | Sample Description and Classification | USCS Classification | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | | | |
| 0-1 | | 1' | | | | | | 0-0.2 D. Br. Med to fine SAND, tr org.<br>0.2-1 SAA + tr. gravel | | |
| 1-3 | | 2' | | | | | | 1-2 Br, Med. Silty SAND tr org<br>2-3 SAA | | |
| 3-6 | | 1' | | | | | | 3-5 SAA<br>5-6 Gray fine SAND, tr. odor | | |

NOTES:

Weather: | Soil Drilled: | Sampler:

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners | | | Boring ID: SB-7 |
| Project Location: Irvington NY | | | Page No. 1 |
| Project No.: 3616216144 | Client: NYSDEC | | of: 1 |
| Boring Location: SB-7 | Refusal Depth: 7' | Total Depth: 6' 1.5' | Bore Hole OD: 3.5' |
| Weather: Sunny, 60s | Soil Drilled: 7.5' | Drilling Method: H. Auger | Casing Size: NA |
| Subcontractor: ~~by Billy~~ 3M NA | Rock Drilled: 5' | Protection Level: D | Sampler: H. Auger |
| Driller: M. Barry, J. Manuel | Date Started: 10/18/23 | Date Completed: 10/18/23 | Sampler ID/OD: 3.5' |
| Rig Type/Model: H. Auger | Logged By: 3M | Checked By: | |
| Reference Elevation: UNK | Water Level: UNK | Time: | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0-0.5 ft | | | | | / | / | | Light brown to dark brown ~~moist~~ (MB) damp soil, fine grained loam with some gravel | GM | |
| 0.5-1.5 ft | | | | | | | | Light brown moist ~~sand~~ fine Sand, w/ gravel + brick | GM | |

NOTES:

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners | | | Boring ID: SB6 |
| Project Location: Irvington NY | | | Page No. 1 |
| Project No: 3616216149 | Client: NYSDEC | | of: 1 |
| Boring Location: 6 N. Dutcher Courtyard | Refusal Depth: NA | Total Depth: 6' | Bore Hole OD: 3" |
| Weather: Sunny, 60s | Soil Drilled: 6' | Drilling Method: Direct Push | Casing Size: 3" |
| Subcontractor: La Bella | Rock Drilled: NA | Protection Level: D | Sampler: Macrocore |
| Driller: Austin/Austin | Date Started: 10/18/23 | Date Completed: 10/18/23 | Sampler ID/OD: 1.5 |
| Rig Type/Model: 420M | Logged By: JM | Checked By: | |
| Reference Elevation: UNK | Water Level: UNK | Time: | |

| Drilling Information | | | | | Sample Information | | | Sample Description and Classification | USCS Classification | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | | | |
| 0-1 | | 1' | | | | | | 0-0.2 Br fine SAND, w/ gravel + fr. silt<br>0.2-1 SAA, w/ brick/fill material, ~~to~~ wood ash remains | | |
| 1-3 | | 1.1 | | | | | | Br. fine SAND w/ trg gravel + fr silt | | |
| 3-6 | | 9" | | | | | | SAA, bottom 2" gray, fine SAND, fr odor | | |

NOTES:

# SOIL BORING LOG

MACTEC
511 Congress Street, Portland Maine 04101

| | | | |
|---|---|---|---|
| Project Name: 30162161144.02 | | | Boring ID: SB-4 |
| Project Location: Irvington NY (NYSDEC) | | | Page No. 1 |
| Project No.: 3616216144 | Client: NYSDEC | | of: 1 |
| Boring Location: N. Exchar St | Refusal Depth: NA | Total Depth: 2 | Bore Hole OD: 3.5" |
| Weather: Sunny, 60s | Soil Drilled: 2 | Drilling Method: Hand Auger | Casing Size: NA |
| Subcontractor: NA | Rock Drilled: NA | Protection Level: D | Sampler: H. Auger |
| Driller: J. Minardi | Date Started: 10/18/23 | Date Completed: 10/18/23 | Sampler ID/OD: 3.5" |
| Rig Type/Model: Hand Auger | Logged By: JM | Checked By: | |
| Reference Elevation: UNK | Water Level: UNK | Time: | |

| Drilling Information | | | | | Sample Information | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | Sample Description and Classification | USCS Classification | Remarks |
| 0-0.2 | | 4" | | | | | | 0-0.2' Br. med. SAND, tr. gravel | | |
| 0.2-1 | | 1.5' | | | | | | 0.2-1.0 SAA | | |
| 1-2 | | | | | | | | 1.0-2 Lgt Br. fine Silty sand, tr gravel | | |

NOTES: Sampled 0-0.2 and 1-2

# SOIL BORING LOG

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| | | | |
|---|---|---|---|
| Project Name: Irvington Cleaners | | | Boring ID: SB-10 |
| Project Location: Irvington NY | | | Page No. 1 |
| Project No.: 3616216144 | Client: NYSDEC | | of: 1 |
| Boring Location: ~~10~~ N. Dutcher tree belt | Refusal Depth: NA | Total Depth: 2' | Bore Hole OD: 3.5" |
| Weather: Sunny, 60s | Soil Drilled: 2' | Drilling Method: H. Auger | Casing Size: ~~3.5"~~ NA |
| Subcontractor: NA | Rock Drilled: NA | Protection Level: D | Sampler: H. Auger |
| Driller: S. Minardi | Date Started: 10/18/23 | Date Completed: 10/18/23 | Sampler ID/OD: 3.5" |
| Rig Type/Model: H. Auger | Logged By: SM | Checked By: | |
| Reference Elevation: UNK | Water Level: UNK | Time: | |

| Drilling Information | | | | | Sample Information | | | Sample Description and Classification | USCS Classification | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (feet bgs) | Sample Number | Penetration (ft) / Recovery (ft) | Blow Counts | N Value | PID Field Screening (ppm) | PID Head Space Reading (ppm) | Analytical Sample Depth (ft) | | | |
| 0-0.2 | | 9" | | | | | | 0-0.2 Brn Med SAND, tr. gravel, tr. org. | | |
| 0.2-1 | | 10" | | | | | | 0.2-1.5 AA | | |
| 1-2 | | 12" | | | | | | 1-2 Light Br. fine silty SAND, tr. gravel | | |

NOTES:

**D.5**
**EXTERIOR SOIL VAPOR SAMPLING**
**MARCH 2022**

# SOIL VAPOR (WITH TRACE GAS) SUMMA CANISTER SAMPLE RECORD

| | | | |
|---|---|---|---|
| PROJECT NAME: NYSDEC - Irvington | | LOCATION (CITY, STATE): Irvington, NY | AOC NAME / NUMBER: |
| PROJECT NUMBER: 361621614.02 | | ACTIVITY START DATE&TIME: 3/23/22 12:15 | LOGGED BY: M |
| SAMPLE ID: 360175-GV008005 | SAMPLE TIME: 12:38 - 13:38 | ACTIVITY END DATE&TIME: 3/23/22 13:40 | PAGE: 1 OF 1 |

**GENERAL INFORMATION**

| | |
|---|---|
| TRACE GAS TYPE, LOT #, EXPIRATION DATE | Helium ID: UN1046 |
| TRACE GAS DETECTOR (MAKE, MODEL, UNIT I.D.) | Dielectric MGD-2002 ID: 031460 |
| PHOTO IONIZATION DETECTOR (MAKE, MODEL, UNIT I.D.) | PPb RAE 3000, ID: 14924 |
| PURGE PUMP (MAKE, MODEL, UNIT ID, FLOW RATE) | Used P.I.D |
| AIR TEMP °C | BAROMETRIC PRESSURE mmHg |

**PURGE DATA**

| | | | | |
|---|---|---|---|---|
| INITIAL BACKGROUND AIR PID READING | 0.0 ppb | SAMPLE DEPTH | 4.5 | BGS/SUB-SLAB |
| TIME TRACE GAS APPLIED | 12:29 | PRE-PURGE TRACE GAS CHAMBER READING | 86.8 | % (>50%) |
| TIME BEGIN PURGING | 12:32 | POST-PURGE TRACE GAS SOIL READING | 0 | % |
| TIME END PURGING | 12:36 | POST-PURGE TRACE GAS CHAMBER READING | 72.6 | % (>50%) |
| PID USED AS PURGE PUMP? | Yes | POST-PURGE PID SOIL READING | 0.0 | ppb |
| PURGE DURATION: 5 min x rate | L/min = | TOTAL VOLUME PURGED | | liters |
| MINIRAE 2000 FLOWRATE: | PURGE VOL CALC FORMULA: $3\pi R^2L=Vol(in.^3)$ | | Convert $in.^3$ to Liters: | |
| 0.5 liters / min | R=radius of probe/tubing (in.), L=length of probe/tubing (in.) | | _____ $(in.^3)$ x 0.01639 = Liters | |

**SUMMA CANISTER / FLOW CONTROLLER DATA**

| | | | | | |
|---|---|---|---|---|---|
| SUMMA CANISTER ID # | 1931 | BATCH CERT ID # | | FLOW CONTROLLER ID # | 4248 |
| SUMMA CANISTER SIZE | 6L | DATE CLEANED | Unknown | FLOW CONTROLLER RATE | 1 hr |
| | | LAB VAC CHECK | Unknown | VAC GAGE ZERO READING mmHg | 0 |

**SAMPLE COLLECTION DATA** SAMPLE TYPE (Circle One): (OUTDOOR SOIL VAPOR) INDOOR SOIL VAPOR

| | | | |
|---|---|---|---|
| SAMPLE START DATE&TIME | 3/23/22 12:38 | INIT CANISTER VACUUM | -30 |
| SAMPLE END DATE&TIME | 3/23/22 13:38 | FINAL CANISTER VACUUM | -9 |
| SAMPLE DURATION | 60 hrs:mns | POST SAMPLING PID READING | 0.0 |

**ANALYSIS**

| PARAMETER | METHOD NUMBER | VOLUME REQUIRED | SAMPLE COLLECTED | DUP, MS, MSD | SAMPLE ID |
|---|---|---|---|---|---|
| TO15 low level | TO15 | 6L | Y | — | 360175-GV008005 |
| | | | | | |
| | | | | | |

COMMENTS / NOTES / WEATHER CONDITIONS

SIGNATURE [signature] CHECKED JSM 5/12/22

MACTEC
511 Congress Street, Ste 200
Portland, ME 04101

# SOIL VAPOR (WITH TRACE GAS) SUMMA CANISTER SAMPLE RECORD

| | | | |
|---|---|---|---|
| PROJECT NAME: NYSDEC - Irvington | | LOCATION (CITY, STATE): Irvington, NY | AOC NAME / NUMBER: |
| PROJECT NUMBER: 361621614.02 | | ACTIVITY START DATE&TIME: 3/24/22 10:00 | LOGGED BY: M |
| SAMPLE ID: 360175-GV0040050 / 360175-GV0040005 | SAMPLE TIME: 11:00 - 12:00 | ACTIVITY END DATE&TIME: 3/24/22 12:00 | PAGE: 1 OF 1 |

**GENERAL INFORMATION**

| | |
|---|---|
| TRACE GAS TYPE, LOT #, EXPIRATION DATE | Helium ID: UN1046 |
| TRACE GAS DETECTOR (MAKE, MODEL, UNIT I.D.) | Dielectric MGD-2002 ID: 051460 |
| PHOTO IONIZATION DETECTOR (MAKE, MODEL, UNIT I.D.) | PPb RAE 3000, ID: 14924 |
| PURGE PUMP (MAKE, MODEL, UNIT ID, FLOW RATE) | Used P.I.D |
| AIR TEMP °C | BAROMETRIC PRESSURE mmHg |

**PURGE DATA**

| | | | | | |
|---|---|---|---|---|---|
| INITIAL BACKGROUND AIR PID READING | 0.0 ppb | SAMPLE DEPTH | 4.5 | BGS/SUB-SLAB | |
| TIME TRACE GAS APPLIED | 10:10 | PRE-PURGE TRACE GAS CHAMBER READING | 89.4 | % (>50%) | |
| TIME BEGIN PURGING | 10:13 | POST-PURGE TRACE GAS SOIL READING | 0 | % | |
| TIME END PURGING | 10:17 | POST-PURGE TRACE GAS CHAMBER READING | 78.3 | % (>50%) | |
| PID USED AS PURGE PUMP? | Yes | POST-PURGE PID SOIL READING | 0.0 | ppb | |
| PURGE DURATION | 5 min x rate | L/min = | TOTAL VOLUME PURGED | | liters |
| MINIRAE 2000 FLOWRATE: | PURGE VOL CALC FORMULA: $3\pi R^2L=Vol(in.^3)$ | | Convert $in.^3$ to Liters: | | |
| 0.5 liters / min | R=radius of probe/tubing (in.), L=length of probe/tubing (in.) | | _____ $(in.^3)$ x 0.01639 = Liters | | |

**SUMMA CANISTER / FLOW CONTROLLER DATA**

| | | | | | |
|---|---|---|---|---|---|
| SUMMA CANISTER ID # | 2042 / 1734 | BATCH CERT ID # | | FLOW CONTROLLER ID # | 4413 |
| SUMMA CANISTER SIZE | 6L | DATE CLEANED | Unknown | FLOW CONTROLLER RATE | 1 hr |
| | | LAB VAC CHECK | Unknown | VAC GAGE ZERO READING mmHg | 0 |

**SAMPLE COLLECTION DATA** — SAMPLE TYPE (Circle One): (OUTDOOR SOIL VAPOR) INDOOR SOIL VAPOR

| | | | |
|---|---|---|---|
| SAMPLE START DATE&TIME | 3/24/22 11:00 | INIT CANISTER VACUUM | -28 |
| SAMPLE END DATE&TIME | 3/24/22 12:00 | FINAL CANISTER VACUUM | -3 |
| SAMPLE DURATION | 60 hrs:mns | POST SAMPLING PID READING | 0.0 |

**ANALYSIS**

| PARAMETER | METHOD NUMBER | VOLUME REQUIRED | SAMPLE COLLECTED | DUP, MS, MSD | SAMPLE ID |
|---|---|---|---|---|---|
| TO15 low level | TO15 | 6L | Y | DUP | 360175-GV0040051 |
| TO15 low level | TO15 | 6L | Y | — | 360175-GV0040005 |
| | | | | | |

COMMENTS / NOTES / WEATHER CONDITIONS

SIGNATURE _____ CHECKED ~~TMM~~ SSM 5/12/22

MACTEC
511 Congress Street, Ste 200
Portland, ME 04101

# SOIL VAPOR (WITH TRACE GAS) SUMMA CANISTER SAMPLE RECORD

| | | | |
|---|---|---|---|
| PROJECT NAME: NYSDEC - Irvington | | LOCATION (CITY, STATE): Irvington, NY | AOC NAME / NUMBER: — |
| PROJECT NUMBER: 361621614.02 | | ACTIVITY START DATE&TIME: 3/24/22 10:20 | LOGGED BY: M |
| SAMPLE ID: 360175-GV010005 | SAMPLE TIME: 10:35 - 11:35 | ACTIVITY END DATE&TIME: 3/24/22 11:40 | PAGE: 1 OF 1 |

**GENERAL INFORMATION**

| | |
|---|---|
| TRACE GAS TYPE, LOT #, EXPIRATION DATE | Helium ID: UN1046 |
| TRACE GAS DETECTOR (MAKE, MODEL, UNIT I.D.) | Dielectric MGD-2002 ID: 051460 |
| PHOTO IONIZATION DETECTOR (MAKE, MODEL, UNIT I.D.) | PPb RAE 3000 ID: 14924 |
| PURGE PUMP (MAKE, MODEL, UNIT ID, FLOW RATE) | Used P.I.D |
| AIR TEMP °C | BAROMETRIC PRESSURE mmHg |

**PURGE DATA**

| | | | | | |
|---|---|---|---|---|---|
| INITIAL BACKGROUND AIR PID READING | 0.0 ppb | SAMPLE DEPTH | 4.5 | BGS/SUB-SLAB | |
| TIME TRACE GAS APPLIED | 10:25 | PRE-PURGE TRACE GAS CHAMBER READING | 92.7 | % (>50%) | |
| TIME BEGIN PURGING | 10:27 | POST-PURGE TRACE GAS SOIL READING | 0 | % | |
| TIME END PURGING | 10:31 | POST-PURGE TRACE GAS CHAMBER READING | 81.7 | % (>50%) | |
| PID USED AS PURGE PUMP? | Yes | POST-PURGE PID SOIL READING | 0.0 | ppb | |
| PURGE DURATION | 5 min x rate | L/min = | TOTAL VOLUME PURGED | | liters |
| MINIRAE 2000 FLOWRATE: 0.5 liters / min | PURGE VOL CALC FORMULA: $3\pi R^2L=Vol(in.^3)$ R=radius of probe/tubing (in.), L=length of probe/tubing (in.) | | Convert $in.^3$ to Liters: _____ $(in.^3)$ x 0.01639 = Liters | | |

**SUMMA CANISTER / FLOW CONTROLLER DATA**

| | | | | | |
|---|---|---|---|---|---|
| SUMMA CANISTER ID # | 2193 | BATCH CERT ID # | | FLOW CONTROLLER ID # | 4353 |
| SUMMA CANISTER SIZE | 6L | DATE CLEANED | Unknown | FLOW CONTROLLER RATE | 1 hr |
| | | LAB VAC CHECK | Unknown | VAC GAGE ZERO READING mmHg | 0 |

**SAMPLE COLLECTION DATA** SAMPLE TYPE (Circle One): (OUTDOOR SOIL VAPOR) INDOOR SOIL VAPOR

| | | | |
|---|---|---|---|
| SAMPLE START DATE&TIME | 3/24/22 10:35 | INIT CANISTER VACUUM | -29 |
| SAMPLE END DATE&TIME | 3/24/22 11:35 | FINAL CANISTER VACUUM | -3 |
| SAMPLE DURATION | 60 hrs:mns | POST SAMPLING PID READING | 0 |

**ANALYSIS**

| PARAMETER | METHOD NUMBER | VOLUME REQUIRED | SAMPLE COLLECTED | DUP, MS, MSD | SAMPLE ID |
|---|---|---|---|---|---|
| TO15 low level | TO15 | 6L | Y | — | 360175-GV010005 |
| | | | | | |
| | | | | | |

COMMENTS / NOTES / WEATHER CONDITIONS

SIGNATURE [signature] CHECKED SSM 5/12/22

MACTEC
511 Congress Street, Ste 200
Portland, ME 04101

# SOIL VAPOR (WITH TRACE GAS) SUMMA CANISTER SAMPLE RECORD

| | | | |
|---|---|---|---|
| PROJECT NAME: NYSDEC - Irington | | LOCATION (CITY, STATE): Irington, NY | AOC NAME / NUMBER: — |
| PROJECT NUMBER: 361621614.02 | | ACTIVITY START DATE&TIME: 3/24/22 14:40 | LOGGED BY: M |
| SAMPLE ID: 360175-GV011005 | SAMPLE TIME: 15:00 - 16:00 | ACTIVITY END DATE&TIME: 3/24/22 16:20 | PAGE: 1 OF 1 |

**GENERAL INFORMATION**

| | |
|---|---|
| TRACE GAS TYPE, LOT #, EXPIRATION DATE | Helium ID: UN1046 |
| TRACE GAS DETECTOR (MAKE, MODEL, UNIT I.D.) | Dielectric MGD-2002 ID: 051460 |
| PHOTO IONIZATION DETECTOR (MAKE, MODEL, UNIT I.D.) | PPb RAE 3000, ID: 14924 |
| PURGE PUMP (MAKE, MODEL, UNIT ID, FLOW RATE) | Used P.I.D |
| AIR TEMP °C | BAROMETRIC PRESSURE mmHg |

**PURGE DATA**

| | | | | | |
|---|---|---|---|---|---|
| INITIAL BACKGROUND AIR PID READING | 0.0 ppb | SAMPLE DEPTH | 4.5 | BGS/SUB-SLAB | |
| TIME TRACE GAS APPLIED | 14:48 | PRE-PURGE TRACE GAS CHAMBER READING | 88.2 | % (>50%) | |
| TIME BEGIN PURGING | 14:50 | POST-PURGE TRACE GAS SOIL READING | 0 | % | |
| TIME END PURGING | 14:54 | POST-PURGE TRACE GAS CHAMBER READING | 79.8 | % (>50%) | |
| PID USED AS PURGE PUMP? | Yes | POST-PURGE PID SOIL READING | 0.0 | ppb | |
| PURGE DURATION | 5 min x rate | L/min = | TOTAL VOLUME PURGED | | liters |
| MINIRAE 2000 FLOWRATE: | | PURGE VOL CALC FORMULA: $3\pi R^2L=Vol(in.^3)$ | Convert $in.^3$ to Liters: | | |
| 0.5 liters / min | | R=radius of probe/tubing (in.), L=length of probe/tubing (in.) | ____$(in.^3)$ x 0.01639 = Liters | | |

**SUMMA CANISTER / FLOW CONTROLLER DATA**

| | | | | | |
|---|---|---|---|---|---|
| SUMMA CANISTER ID # | 1176 | BATCH CERT ID # | | FLOW CONTROLLER ID # | 4121 |
| SUMMA CANISTER SIZE | 6L | DATE CLEANED | Unknown | FLOW CONTROLLER RATE | @1 hr |
| | | LAB VAC CHECK | Unknown | VAC GAGE ZERO READING mmHg | 0 |

**SAMPLE COLLECTION DATA** — SAMPLE TYPE (Circle One): (OUTDOOR SOIL VAPOR) INDOOR SOIL VAPOR

| | | | |
|---|---|---|---|
| SAMPLE START DATE&TIME | 3/24/22 15:00 | INIT CANISTER VACUUM | -29 |
| SAMPLE END DATE&TIME | 3/24/22 16:00 | FINAL CANISTER VACUUM | -8 |
| SAMPLE DURATION | 60 hrs:mns | POST SAMPLING PID READING | 0 |

**ANALYSIS**

| PARAMETER | METHOD NUMBER | VOLUME REQUIRED | SAMPLE COLLECTED | DUP, MS, MSD | SAMPLE ID |
|---|---|---|---|---|---|
| TO15 low level | TO15 | 6L | Y | — | 360175-GV011005 |
| | | | | | |
| | | | | | |

COMMENTS / NOTES / WEATHER CONDITIONS

SIGNATURE [signature] CHECKED SSM 5/12/22

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Portland, ME 04101

# SOIL VAPOR (WITH TRACE GAS) SUMMA CANISTER SAMPLE RECORD

| | | | |
|---|---|---|---|
| PROJECT NAME: NYSDEC - Irington | | LOCATION (CITY, STATE): Irington, NY | AOC NAME / NUMBER: — |
| PROJECT NUMBER: 361621614.02 | | ACTIVITY START DATE&TIME: 3/24/22 13:20 | LOGGED BY: M |
| SAMPLE ID: 360175-GV012005 | SAMPLE TIME: 13:33 - 14:33 | ACTIVITY END DATE&TIME: 3/24/22 15:00 | PAGE: 1 OF 1 |

**GENERAL INFORMATION**

| | |
|---|---|
| TRACE GAS TYPE, LOT #, EXPIRATION DATE | Helium ID: UN1046 |
| TRACE GAS DETECTOR (MAKE, MODEL, UNIT I.D.) | Dielectric MGD-2002 ID: 051460 |
| PHOTO IONIZATION DETECTOR (MAKE, MODEL, UNIT I.D.) | PPb RAE 3000, ID: 14924 |
| PURGE PUMP (MAKE, MODEL, UNIT ID, FLOW RATE) | Used P.I.D |
| AIR TEMP °C: | BAROMETRIC PRESSURE mmHg: |

**PURGE DATA**

| | | | | | |
|---|---|---|---|---|---|
| INITIAL BACKGROUND AIR PID READING | 0.0 ppb | SAMPLE DEPTH | 4.5 | BGS/SUB-SLAB | |
| TIME TRACE GAS APPLIED | 13:23 | PRE-PURGE TRACE GAS CHAMBER READING | 86.4 | % (>50%) | |
| TIME BEGIN PURGING | 13:25 | POST-PURGE TRACE GAS SOIL READING | 0 | % | |
| TIME END PURGING | 13:29 | POST-PURGE TRACE GAS CHAMBER READING | 69.1 | % (>50%) | |
| PID USED AS PURGE PUMP? | Yes | POST-PURGE PID SOIL READING | 0.0 | ppb | |
| PURGE DURATION: 5 min x rate | L/min = | TOTAL VOLUME PURGED | | liters | |
| MINIRAE 2000 FLOWRATE: | PURGE VOL CALC FORMULA: $3\pi R^2L=Vol(in.^3)$ | Convert $in.^3$ to Liters: | | | |
| 0.5 liters / min | R=radius of probe/tubing (in.), L=length of probe/tubing (in.) | ____$(in.^3)$ x 0.01639 = Liters | | | |

**SUMMA CANISTER / FLOW CONTROLLER DATA**

| | | | | | |
|---|---|---|---|---|---|
| SUMMA CANISTER ID # | 1924 | BATCH CERT ID # | | FLOW CONTROLLER ID # | 4329 |
| SUMMA CANISTER SIZE | 6L | DATE CLEANED | Unknown | FLOW CONTROLLER RATE | 1 hr |
| | | LAB VAC CHECK | Unknown | VAC GAGE ZERO READING mmHg | 0 |

**SAMPLE COLLECTION DATA**

SAMPLE TYPE (Circle One): (OUTDOOR SOIL VAPOR) INDOOR SOIL VAPOR

| | | | |
|---|---|---|---|
| SAMPLE START DATE&TIME | 3/24/22 13:33 | INIT CANISTER VACUUM | -27 |
| SAMPLE END DATE&TIME | 3/24/22 14:33 | FINAL CANISTER VACUUM | -4 |
| SAMPLE DURATION | 60 hrs:mns | POST SAMPLING PID READING | 0 |

**ANALYSIS**

| PARAMETER | METHOD NUMBER | VOLUME REQUIRED | SAMPLE COLLECTED | DUP, MS, MSD | SAMPLE ID |
|---|---|---|---|---|---|
| TO15 low level | TO15 | 6L | Y | — | 360175-GV012005 |
| | | | | | |
| | | | | | |

COMMENTS / NOTES / WEATHER CONDITIONS

SIGNATURE [signature] CHECKED SSM 5/12/22

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Portland, ME 04101

# SOIL VAPOR (WITH TRACE GAS) SUMMA CANISTER SAMPLE RECORD

| | | | |
|---|---|---|---|
| PROJECT NAME: NYSDEC - Irvington | | LOCATION (CITY, STATE): Irvington, NY | AOC NAME / NUMBER: — |
| PROJECT NUMBER: 361621614.02 | | ACTIVITY START DATE&TIME: 3/25/22 7:25 | LOGGED BY: M |
| SAMPLE ID: 360175-GV014005 | SAMPLE TIME: 7:40 - 8:40 | ACTIVITY END DATE&TIME: 3/25/22 8:50 | PAGE: 1 OF 1 |

**GENERAL INFORMATION**

| | |
|---|---|
| TRACE GAS TYPE, LOT #, EXPIRATION DATE | Helium ID: UN1046 |
| TRACE GAS DETECTOR (MAKE, MODEL, UNIT I.D.) | Dielectric MGD-2002 ID: 051460 |
| PHOTO IONIZATION DETECTOR (MAKE, MODEL, UNIT I.D.) | PPb RAE 3000, ID: 14924 |
| PURGE PUMP (MAKE, MODEL, UNIT ID, FLOW RATE) | Used P.I.D |
| AIR TEMP °C | BAROMETRIC PRESSURE mmHg |

**PURGE DATA**

| | | | | | |
|---|---|---|---|---|---|
| INITIAL BACKGROUND AIR PID READING | 0.0 ppb | SAMPLE DEPTH | 4.5 | BGS/SUB-SLAB | |
| TIME TRACE GAS APPLIED | 7:28 | PRE-PURGE TRACE GAS CHAMBER READING | 84.7 | % (>50%) | |
| TIME BEGIN PURGING | 7:31 | POST-PURGE TRACE GAS SOIL READING | 0 | % | |
| TIME END PURGING | 7:35 | POST-PURGE TRACE GAS CHAMBER READING | 64.9 | % (>50%) | |
| PID USED AS PURGE PUMP? | Yes | POST-PURGE PID SOIL READING | 0.0 | ppb | |
| PURGE DURATION | 5 min x rate | L/min = | TOTAL VOLUME PURGED | | liters |
| MINIRAE 2000 FLOWRATE: | PURGE VOL CALC FORMULA: $3\pi R^2L=Vol(in.^3)$ | | Convert $in.^3$ to Liters: | | |
| 0.5 liters / min | R=radius of probe/tubing (in.), L=length of probe/tubing (in.) | | ____$(in.^3)$ x 0.01639 = Liters | | |

**SUMMA CANISTER / FLOW CONTROLLER DATA**

| | | | | | |
|---|---|---|---|---|---|
| SUMMA CANISTER ID # | 1139 | BATCH CERT ID # | | FLOW CONTROLLER ID # | 4335 |
| SUMMA CANISTER SIZE | 6L | DATE CLEANED | Unknown | FLOW CONTROLLER RATE | 1hr |
| | | LAB VAC CHECK | Unknown | VAC GAGE ZERO READING mmHg | 0 |

**SAMPLE COLLECTION DATA** SAMPLE TYPE (Circle One): (OUTDOOR SOIL VAPOR) INDOOR SOIL VAPOR

| | | | |
|---|---|---|---|
| SAMPLE START DATE&TIME | 3/25/22 7:40 | INIT CANISTER VACUUM | -29 |
| SAMPLE END DATE&TIME | 3/25/22 8:40 | FINAL CANISTER VACUUM | -4 |
| SAMPLE DURATION | 60 hrs:mns | POST SAMPLING PID READING | 0 |

**ANALYSIS**

| PARAMETER | METHOD NUMBER | VOLUME REQUIRED | SAMPLE COLLECTED | DUP, MS, MSD | SAMPLE ID |
|---|---|---|---|---|---|
| TO15 low level | TO15 | 6L | Y | — | 360175-GV014005 |
| | | | | | |
| | | | | | |

COMMENTS / NOTES / WEATHER CONDITIONS

SIGNATURE [signature] CHECKED JSM 5/12/22

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Portland, ME 04101

# SOIL VAPOR (WITH TRACE GAS) SUMMA CANISTER SAMPLE RECORD

| | | | |
|---|---|---|---|
| PROJECT NAME: NYSDEC - Irvington | | LOCATION (CITY, STATE): Irvington, NY | AOC NAME / NUMBER: — |
| PROJECT NUMBER: 361621614.02 | | ACTIVITY START DATE&TIME: 3/24/22 (11:30) | LOGGED BY: M |
| SAMPLE ID: 360175-GV015005 | SAMPLE TIME: 11:55 - 12:55 | ACTIVITY END DATE&TIME: 3/24/22 13:05 | PAGE: 1 OF 1 |

**GENERAL INFORMATION**

| | |
|---|---|
| TRACE GAS TYPE, LOT #, EXPIRATION DATE | Helium ID: un1046 |
| TRACE GAS DETECTOR (MAKE, MODEL, UNIT I.D.) | Dielectric MGD-2002 ID: 051460 |
| PHOTO IONIZATION DETECTOR (MAKE, MODEL, UNIT I.D.) | PPb RAE 3000, ID: 14924 |
| PURGE PUMP (MAKE, MODEL, UNIT ID, FLOW RATE) | used P.I.D |
| AIR TEMP °C | BAROMETRIC PRESSURE mmHg |

**PURGE DATA**

| | | | | | |
|---|---|---|---|---|---|
| INITIAL BACKGROUND AIR PID READING | 0.0 ppb | SAMPLE DEPTH | 4.5 | BGS/SUB-SLAB | |
| TIME TRACE GAS APPLIED | 11:45 | PRE-PURGE TRACE GAS CHAMBER READING | 87.5 | % (>50%) | |
| TIME BEGIN PURGING | 11:47 | POST-PURGE TRACE GAS SOIL READING | 0 | % | |
| TIME END PURGING | 11:51 | POST-PURGE TRACE GAS CHAMBER READING | 70.9 | % (>50%) | |
| PID USED AS PURGE PUMP? | Yes | POST-PURGE PID SOIL READING | 0.0 | ppb | |
| PURGE DURATION | 5 min x rate | L/min = | TOTAL VOLUME PURGED | | liters |
| MINIRAE 2000 FLOWRATE: | PURGE VOL CALC FORMULA: $3\pi R^2L=Vol(in.^3)$ | | Convert $in.^3$ to Liters: | | |
| 0.5 liters / min | R=radius of probe/tubing (in.), L=length of probe/tubing (in.) | | ____$(in.^3)$ x 0.01639 = Liters | | |

**SUMMA CANISTER / FLOW CONTROLLER DATA**

| | | | | | |
|---|---|---|---|---|---|
| SUMMA CANISTER ID # | 1452 | BATCH CERT ID # | | FLOW CONTROLLER ID # | 4354 |
| SUMMA CANISTER SIZE | 6L | DATE CLEANED | Unknown | FLOW CONTROLLER RATE | 1hr |
| | | LAB VAC CHECK | Unknown | VAC GAGE ZERO READING mmHg | 0 |

**SAMPLE COLLECTION DATA** — SAMPLE TYPE (Circle One): (OUTDOOR SOIL VAPOR) INDOOR SOIL VAPOR

| | | | |
|---|---|---|---|
| SAMPLE START DATE&TIME | 3/24/22 11:55 | INIT CANISTER VACUUM | -30 |
| SAMPLE END DATE&TIME | 3/24/22 12:55 | FINAL CANISTER VACUUM | -3 |
| SAMPLE DURATION | 60 hrs:mns | POST SAMPLING PID READING | 0 |

**ANALYSIS**

| PARAMETER | METHOD NUMBER | VOLUME REQUIRED | SAMPLE COLLECTED | DUP, MS, MSD | SAMPLE ID |
|---|---|---|---|---|---|
| TO15 low level | TO15 | 6L | Y | — | 360175-GV015005 |
| | | | | | |
| | | | | | |

COMMENTS / NOTES / WEATHER CONDITIONS

SIGNATURE [signature] CHECKED JSM 5/12/22

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# SOIL VAPOR (WITH TRACE GAS) SUMMA CANISTER SAMPLE RECORD

| | | | |
|---|---|---|---|
| PROJECT NAME: NYSDEC - Irvington | | LOCATION (CITY, STATE): Irvington, NY | AOC NAME / NUMBER: |
| PROJECT NUMBER: 36162161144.02 | | ACTIVITY START DATE&TIME: 3/23/22 15:15 | LOGGED BY: M |
| SAMPLE ID: 360175-GV016005 | SAMPLE TIME: 15:28 - 16:28 | ACTIVITY END DATE&TIME: 3/23/22 16:30 | PAGE: 1 OF 1 |

**GENERAL INFORMATION**

| | |
|---|---|
| TRACE GAS TYPE, LOT #, EXPIRATION DATE | Helium ID: UN1046 |
| TRACE GAS DETECTOR (MAKE, MODEL, UNIT I.D.) | Dielectric MGD-2002 ID: 051460 |
| PHOTO IONIZATION DETECTOR (MAKE, MODEL, UNIT I.D.) | PPb RAE 3000, ID: 14924 |
| PURGE PUMP (MAKE, MODEL, UNIT ID, FLOW RATE) | Used P.I.D |
| AIR TEMP °C | BAROMETRIC PRESSURE mmHg |

**PURGE DATA**

| | | | | | |
|---|---|---|---|---|---|
| INITIAL BACKGROUND AIR PID READING | 0.0 ppb | SAMPLE DEPTH | 4.5 | BGS/SUB-SLAB | |
| TIME TRACE GAS APPLIED | 15:20 | PRE-PURGE TRACE GAS CHAMBER READING | 82.0 | % (>50%) | |
| TIME BEGIN PURGING | 15:22 | POST-PURGE TRACE GAS SOIL READING | 0 | % | |
| TIME END PURGING | 15:26 | POST-PURGE TRACE GAS CHAMBER READING | 70.1 | % (>50%) | |
| PID USED AS PURGE PUMP? | Yes | POST-PURGE PID SOIL READING | 0.0 | ppb | |
| PURGE DURATION | 5 min x rate | L/min = | TOTAL VOLUME PURGED | | liters |
| MINIRAE 2000 FLOWRATE: | PURGE VOL CALC FORMULA: $3\pi R^2L=Vol(in.^3)$ | | Convert $in.^3$ to Liters: | | |
| 0.5 liters / min | R=radius of probe/tubing (in.), L=length of probe/tubing (in.) | | _____ $(in.^3)$ x 0.01639 = Liters | | |

**SUMMA CANISTER / FLOW CONTROLLER DATA**

| | | | | | |
|---|---|---|---|---|---|
| SUMMA CANISTER ID # | 1853 | BATCH CERT ID # | | FLOW CONTROLLER ID # | 4252 |
| SUMMA CANISTER SIZE | 6L | DATE CLEANED | Unknown | FLOW CONTROLLER RATE | 1 hr |
| | | LAB VAC CHECK | Unknown | VAC GAGE ZERO READING mmHg | 0 |

**SAMPLE COLLECTION DATA** — SAMPLE TYPE (Circle One): (OUTDOOR SOIL VAPOR) INDOOR SOIL VAPOR

| | | | |
|---|---|---|---|
| SAMPLE START DATE&TIME | 3/23/22 15:28 | INIT CANISTER VACUUM | -30 |
| SAMPLE END DATE&TIME | 3/23/22 16:28 | FINAL CANISTER VACUUM | -27 |
| SAMPLE DURATION | 60 hrs:mns | POST SAMPLING PID READING | 0.0 |

**ANALYSIS**

| PARAMETER | METHOD NUMBER | VOLUME REQUIRED | SAMPLE COLLECTED | DUP, MS, MSD | SAMPLE ID |
|---|---|---|---|---|---|
| TO15 low level | TO15 | 6L | Y | — | 360175-GV016005 |
| | | | | | |
| | | | | | |

COMMENTS / NOTES / WEATHER CONDITIONS

* possibly a bad reg/or possible pulled moisture. Wouldn't not get below -27 after an hour.

SIGNATURE [signature] CHECKED 5/12/22 JSM

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# SOIL VAPOR (WITH TRACE GAS) SUMMA CANISTER SAMPLE RECORD

| | | | |
|---|---|---|---|
| PROJECT NAME: NYSDEC - Irvington | | LOCATION (CITY, STATE): Irvington, NY | AOC NAME / NUMBER: — |
| PROJECT NUMBER: 361621614.02 | | ACTIVITY START DATE&TIME: 3/24/22 8:30 | LOGGED BY: M |
| SAMPLE ID: 360175-GV017005 | SAMPLE TIME: 8:40 - 9:40 | ACTIVITY END DATE&TIME: 3/24/22 10:00 | PAGE: 1 OF 1 |

**GENERAL INFORMATION**

| | |
|---|---|
| TRACE GAS TYPE, LOT #, EXPIRATION DATE | Helium ID: un1046 |
| TRACE GAS DETECTOR (MAKE, MODEL, UNIT I.D.) | Dielectric MGD-2002 ID: 051460 |
| PHOTO IONIZATION DETECTOR (MAKE, MODEL, UNIT I.D.) | PPb RAE 3000 . ID: 14924 |
| PURGE PUMP (MAKE, MODEL, UNIT ID, FLOW RATE) | used P.I.D |
| AIR TEMP °C | BAROMETRIC PRESSURE mmHg |

**PURGE DATA**

| | | | | | |
|---|---|---|---|---|---|
| INITIAL BACKGROUND AIR PID READING | 0.0 ppb | SAMPLE DEPTH | 4.5 | BGS/SUB-SLAB | |
| TIME TRACE GAS APPLIED | 8:30 | PRE-PURGE TRACE GAS CHAMBER READING | 88.4 | % (>50%) | |
| TIME BEGIN PURGING | 8:31 | POST-PURGE TRACE GAS SOIL READING | 0 | % | |
| TIME END PURGING | 8:35 | POST-PURGE TRACE GAS CHAMBER READING | 69.2 | % (>50%) | |
| PID USED AS PURGE PUMP? | Yes | POST-PURGE PID SOIL READING | 0.0 | ppb | |
| PURGE DURATION | 5 min x rate | L/min = | TOTAL VOLUME PURGED | | liters |
| MINIRAE 2000 FLOWRATE: | | PURGE VOL CALC FORMULA: $3\pi R^2L=Vol(in.^3)$ | Convert $in.^3$ to Liters: | | |
| 0.5 liters / min | | R=radius of probe/tubing (in.), L=length of probe/tubing (in.) | ____$(in.^3)$ x 0.01639 = Liters | | |

**SUMMA CANISTER / FLOW CONTROLLER DATA**

| | | | | | |
|---|---|---|---|---|---|
| SUMMA CANISTER ID # | 1146 | BATCH CERT ID # | | FLOW CONTROLLER ID # | 4139 |
| SUMMA CANISTER SIZE | 6L | DATE CLEANED | Unknown | FLOW CONTROLLER RATE | 1 hr |
| | | LAB VAC CHECK | Unknown | VAC GAGE ZERO READING mmHg | 0 |

**SAMPLE COLLECTION DATA** — SAMPLE TYPE (Circle One): (OUTDOOR SOIL VAPOR) INDOOR SOIL VAPOR

| | | | |
|---|---|---|---|
| SAMPLE START DATE&TIME | 3/24/22 8:40 | INIT CANISTER VACUUM | -26 |
| SAMPLE END DATE&TIME | 3/24/22 9:40 | FINAL CANISTER VACUUM | -5 |
| SAMPLE DURATION | 60 hrs:mns | POST SAMPLING PID READING | 0.0 |

**ANALYSIS**

| PARAMETER | METHOD NUMBER | VOLUME REQUIRED | SAMPLE COLLECTED | DUP. MS, MSD | SAMPLE ID |
|---|---|---|---|---|---|
| TO15 low level | TO15 | 6L | Y | — | 360175-GV017005 |
| | | | | | |
| | | | | | |

COMMENTS / NOTES / WEATHER CONDITIONS

SIGNATURE [signature] CHECKED SSM 5/12/22

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# APPENDIX E

# CLIMATE SCREENING CHECKLIST

# Climate Screening Checklist

## Background Information

- Project Manager: Justin Starr (NYSDEC) Chuck Staples (EEE&G)
- Site Name: Irvington Rugs and Cleaners
- Site Number: 360175
- Site Location: Irvington, NY
- Site Elevation (average above sea level): 90 ft (Site well survey)
- ClimAID Region (Responding Climate Change in New York State (ClimAID) - NYSERDA):
    - 5 - East Hudson and Mohawk River Valleys
- Remedial Stage/site classification: Class 2 Site. Remedial Investigation/Feasibility Study

- Contamination - Media Impacted/ Contaminants of Concern: Chlorinated compounds (primarily PCE) in soil, groundwater and soil vapor. PFAS in soil and groundwater.

- Proposed/Current Remedy:

- What is the predicted timeframe of the remedy? Will components of the remedy still be in place in 10+ years?: It is anticipated that sub-slab depressurization systems will still be in operation in 10 years.

- Is the site in proximity to any sensitive receptors? (e.g. wetlands, waterbodies, residential properties, hospitals, schools, drinking water supplies, etc.): Yes - property is in proximity to residential properties and mixed use (residential/commercial) properties.

Is the site in a disadvantaged community (DAC) or potential environmental justice area (PEJA) (Use DECinfolocator: DECinfo Locator (ny.gov))?

☐ **Yes** ■ **No**

If the site is in a DAC or PEJA, will climate impacts be magnified? If yes, list how and why.

☐ **Yes** ☐ **No**

| |
|---|
| |

Should thresholds of concern be lowered to account for magnification of impacts? If yes, indicate how lower thresholds will be used in the screening.

☐ **Yes** ■ **No**

## Climate Screening Table*

| Potential Climate Hazards | **Relevant to the Site Location** (Y/N/NA)[1] | **Projected Change** (Reference data source/Model)[3] | **Potential to Impact Remedy** (Y/N) | **Is remedy/site already resilient?** (Y/N)[4] |
|---|---|---|---|---|
| Precipitation | Y | | N | Y |
| Temperature[2] (Extreme Heat or Cold Weather Impacts) | Y | 1.7 to 3.7 degree NYSERDA ClimAID report | N | Y |
| Sea Level Rise | N | | | |
| Flooding | N | | | |
| Storm Surge | N | | | |
| Wildfire | N | | | |
| Drought | N | | | |
| Storm Severity | Y | NYSERDA ClimAID report | N | Y |
| Landslides | N | | | |
| Other Hazards: | | | | |

* Links to potential data sources can be found on the following page

[1] If the first column is N --> The rest of the columns will be N/A, the hazard is not applicable to the site.

[2] Extreme Heat: periods of three or more days above 90°F- Extreme Cold: Individual days with minimum temperatures at or below 0 degrees F (NYSERDA ClimAID report)

[3] List the projected change in specific terms or units e.g. inches of rain fall, feet of sea level rise, etc.

[4] If final column is Y, provide reasoning, if the final column is N --> Climate Vulnerability Assessment (CVA) required.

**Required Next Steps (If no further action is required, provide justification):**

No further action needed. Site is covered in pavement and building and above river or flooding potential. Extreme heat or precipitation is not expected to adversely impact the remedy; however, if extreme weather events cause power outages, the operating SSDSs would temporarily lose power.

## Potential Data Sources (not an exhaustive list)- from Superfund Climate Resilience: Vulnerability Assessment | US EPA

**NYSERDA ClimAID report**- Responding Climate Change in New York State (ClimAID) - NYSERDA

FEMA- National Flood Hazard Layer | FEMA.gov

NOAA- National Storm Surge Risk Maps - Version 3 (noaa.gov)

Department of Agriculture Forest Service Wildfire Risk to Communities

EPA Climate Change Indicators in the United States

EPA Climate Resilience Evaluation & Awareness Tool (CREAT) | U.S. Climate Resilience Toolkit

EPA National Stormwater Calculator

National Integrated Drought Information System U.S. Drought Portal

National Interagency Coordination Center National Interagency Fire Center

National Oceanic and Atmospheric Administration Coastal Services Digital Coast

- Resources to help communities assess coastal hazards, such as the Sea Level Rise Viewer for visualizing community-level impacts of flooding or sea level rise and downloadable LIDAR data

National Oceanic and Atmospheric Administration National Centers for Environmental Information website

National Oceanic and Atmospheric Administration Sea Level Trends

National Weather Service Climate Prediction Center

National Weather Service National Hurricane Center

National Weather Service Sea, Lake, and Overland Surges from Hurricanes (SLOSH)

National Weather Service Storm Surge Hazard Maps

U.S. Federal Government Climate Resilience Toolkit: The Climate Explorer

U.S. Army Corps of Engineers Climate Prepardness and Resilience

U.S. Geological Survey Coastal Change Hazards Portal

U.S. Geological Survey Landslide Hazards Program

U.S. Geological Survey National Ground-water Monitoring Network Data Portal

U.S. Geological Survey National Climate Change Viewer

U.S. Geological Survey National Water Dashboard

U.S. Geological Survey StreamStats

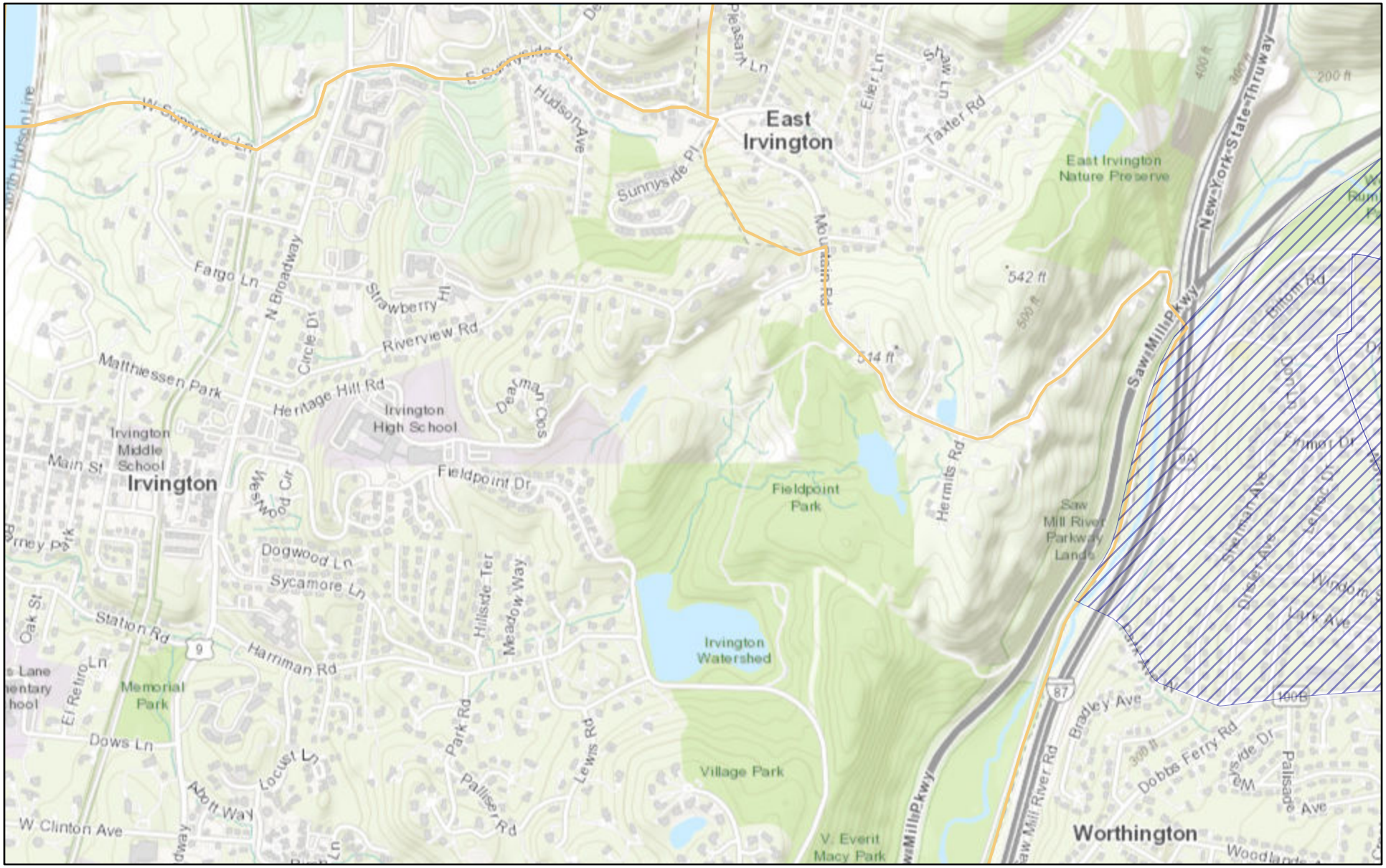
NYS Department of State- Assess | Department of State (ny.gov)

NYSERDA NY Costal Floodplain Mapper- Home Page (ny.gov)

NYSDEC Costal Erosion Hazards- Coastal Areas Regulated By The CEHA Permit Program - NYDEC

NYSDOH Heat Index- health.ny.gov/environmental/weather/vulnerability_index/county_maps.htm

# Irvington Rugs and Cleaners Site-DECInfo




April 16, 2025

**Public Involvement**

- Potential Environmental Justice Areas
- Disadvantaged Communities (DAC)

1:18,056

0 0.1 0.2 0.4 mi

0 0.17 0.35 0.7 km

County of Westchester, Esri, HERE, Garmin, INCREMENT P, USGS, METI/ NASA, EPA, USDA

NYS Department of Environmental Conservation

Not a legal document

# APPENDIX F

# DATA USABILITY SUMMARY REPORTS (DUSR)

# DATA USABILITY SUMMARY REPORT
# JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
# IRVINGTON RUGS AND CLEANERS
# IRVINGTON, NEW YORK

## 1.0 INTRODUCTION

Groundwater, soil, and air samples were collected in January, March, May, and/or June 2022 at the Irvington Rugs and Cleaners Site in Irvington, New York, and shipped to Con-test Laboratory located in East Longmeadow, MA, for analysis. Samples were analyzed by the following methods:

- Volatile Organic Compounds (VOCs) by USEPA Method 8260D
- VOCs by USEPA Method TO-15
- Semivolatile Organic Compounds (SVOCs) by USEPA Method 8270E
- Pesticides by USEPA Method 8081B
- Polychlorinated Biphenyls by USEPA Method 8082A
- Total Metals by USEPA Methods 6010D/7470A
- Per- and Polyfluorinated Alkyl Substances (PFAS) by Methods SOP-454 PFAS and SOP-466 PFAS
- Total Solids by Method SM2540G

Results were reported in the following sample delivery groups (SDGs):

- 22A0721
- 22C1692
- 22C1815
- 22C1819
- 22E1903
- 22F0915
- 22F1625

A Data Usability Summary Report (DUSR) review was completed based on the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation guidance (NYSDEC, 2010). Sample event information included in this DUSR is presented in the following tables:

- Table 1 – Summary of Samples and Analytical Methods
- Table 2 – Summary of Analytical Results
- Table 3 – Qualification Action Summary

A summary of table notes applicable to Tables 1, 2, and 3 is presented just before Table 1.

Laboratory deliverables included:

- Category B deliverables as defined in the NYSDEC Analytical Services Protocols (NYSDEC, 2005).

The DUSR review included the following evaluations. A table of the project control limits for VOCs, SVOCs, Pesticides, PCBs, metals, and PFAS is presented in Attachment A. DUSR review checklists and applicable laboratory QC summary forms are included in Attachment B to document QC outliers associated with qualification actions.

- Lab Report Narrative Review
- Data Package Completeness and COC records (Table 1 verification)
- Sample Preservation and Holding Times
- Instrument Calibration (report narrative/lab-qualifier evaluation)
- QC Blanks
- Laboratory Control Samples (LCS)
- Matrix Spike/Matrix Spike Duplicates (MS/MSD)
- Surrogate Spikes (if applicable)
- Internal Standards (if applicable)
- Field Duplicates
- Target Analyte Identification and Quantitation
- Raw Data (chromatograms), Calculation Checks and Transcription Verifications
- Reporting Limits
- Electronic Data Qualification and Verification

Data qualification actions were based on general procedures identified in the NYSDEC validation guideline for PFAS (NYSDEC, 2019) and USEPA validation guidelines (USEPA, 2014; USEPA, 2016a; USEPA, 2016b).The following laboratory or data review qualifiers are used in the final data presentation:

U = target analyte is not detected above the reported detection limit
J = concentration is estimated
UJ = target analyte is not detected, value is estimated
J+ = concentration is estimated and potentially biased high
J- = concentration is estimated and potentially biased low
R = result is rejected

Results are interpreted to be usable as reported by the laboratory unless discussed in the following sections.

## 2.0 EXECUTIVE SUMMARY

Based on the DUSR review the majority of sample results are interpreted to be usable as reported by the laboratory. Results for a subset of samples were qualified estimated due to holding time exceedances, calibration percent differences, blank contamination, internal standard recoveries, LCS/LCSD percent recoveries and MS/MSD percent recoveries. Non-detect results for benzoic acid in samples 360175-DP005011 and 360175-DP005011D were qualified rejected based on MS/MSD percent recoveries less than 10 and are interpreted to be unusable for project objectives. Non-detect results for PFAS in a subset of samples were qualified rejected based on extracted internal standard percent recoveries less than 10 and are interpreted to be unusable for project objectives.

## 3.0 DATA QUALIFICATION ACTIONS AND OBSERVATIONS

VOCs by 8260D

**22C1692** – Sample 360175-DP002011 was incorrectly written on the COC and logged by the laboratory as 360175-DP003011. The sample ID has been corrected in the database.

**22A0721** - Tetrachloroethene in samples 360175-GW002-14, 360175-HA001001, 360175-HA001001D, and 360175-GW002-16 was reported from analyses performed 21 days after expiration of the 14-day holding time. Samples were collected on January 12, 2022 were diluted and reanalyzed for tetrachloroethene on February 16, 2022. Results for tetrachloroethene were qualified as estimated (J). Qualified results are included in Table 2 with reason code HTG.

**22A0721** - Reporting limits for bromomethane in samples 360175-GW002-14, 360175-GW002-13, 360175-HA001001, 360175-HA001001D, 360175-HA002001, 360175-GW002-15, and 360175-GW002-16 and chloromethane in samples 360175-GW002-14, 360175-GW002-13, 360175-GW002-15, and 360175-GW002-16 were qualified as estimated (UJ) based on initial calibration verification (ICV) standard percent differences greater than the control limit and indicating potential low bias. Qualified results are included in Table 3 with reason code ICV%D.

**22A0721** - Reporting limits for 1,2-dibromo-3-chloropropane, 2-butanone, benzene, bromomethane, chloromethane, methyl acetate, and naphthalene in a subset of samples were qualified as estimated (UJ) based on continuing calibration verification (CCV) standard percent differences greater than control limit and indicating potential low bias. Qualified results are included in Table 3 with reason code CCV%D.

**22A0721** - The results for methylene chloride in sample 360175-GW002-14 and tetrachloroethene in samples 360175-GW002-13 and 360175-GW002-15 were qualified as estimated with potential high bias (J+) based on CCV standard percent differences greater than the control limit and indicating potential high bias. Qualified results are included in Table 3 with reason code CCV%D.

**22C1692** - Reporting limits and results for 1,4-dioxane, 2-butanone, 2-hexanone, acetone, acrylonitrile, naphthalene, and tert-butyl alcohol in samples 360175-DP002011, 360175-DP004011, 360175-DP005011, 360175-DP005011D, 360175-DW001-1, and 360175-DW002-2 were qualified as estimated with potential low bias (J-/UJ) based on CCV standard percent differences greater than the control limit and indicating potential low bias. Qualified results are included in Table 3 with reason code CCV%D.

**22E1903** - Reporting limits and results for 2-butanone, 2-hexanone, methylene chloride, and tert-butyl alcohol in samples 360175-DP08011, 360175-DP01009, 360175-DP015010, 360175-DP016012, 360175-DP017012, 360175-DP01108, and 360175-DP01206 were qualified as estimated with potential low bias (J-/UJ) based on CCV standard percent differences greater than the control limit and indicating potential low bias. Qualified results are included in Table 3 with reason code CCV%D.

**22F1625** - Reporting limits for 1,4-dioxane, 2-butanone, 2-hexanone, acetone, acrylonitrile, naphthalene, and tert-butyl alcohol in samples 360175-MW0030020 and

360175-MW0030020 Dup were qualified as estimated (UJ) based on CCV standard percent differences greater than the control limit and indicating potential low bias. Qualified results are included in Table 3 with reason code CCV%D.

**22A0721** - TB20220112 had a detection of toluene (0.51 J ug/L) below the reporting limit. The result for toluene in sample 360175-GW002-14 was qualified as non-detect (U) at the reporting limit. The qualified result is included in Table 3 with reason code BL2.

**22F1625** – 360175-TB624 had a detection of methylene chloride (0.29 J ug/L) below the reporting limit. The results for methylene chloride in samples 360175-MW0030020 and 360175-MW0030020 Dup were qualified as non-detect (U) at the reporting limit. Qualified results are included in Table 3 with reason code BL2.

**22A0721** - Reporting limits for methyl acetate in samples 360175-HA001001, 360175-HA001001D, and 360175-HA002001 were qualified as estimated (UJ) based on percent recoveries in the LCS/LCSD that were less than the lower control limit. Qualified results are included in Table 3 with reason code LCSL.

**22A0721** - Reporting limits for chloromethane in samples 360175-GW002-14, 360175-GW002-13, 360175-GW002-15, and 360175-GW002-16 were qualified as estimated (UJ) based on percent recoveries in the LCS/LCSD that were less than the lower control limit. Qualified results are included in Table 3 with reason code LCSL.

**22E1903** - Reporting limits for naphthalene in samples 360175-DP08011, 360175-DP01009, 360175-DP015010, 360175-DP016012, 360175-DP017012, 360175-DP01108, and 360175-DP01206 were qualified as estimated (UJ) based on a percent recovery in the LCS that was less than the lower control limit. Qualified results are included in Table 3 with reason code LCSL.

**22F1625** - Reporting limits for naphthalene and t-butyl alcohol in samples 360175-MW0030020 and 360175-MW0030020 Dup were qualified as estimated (UJ) based on percent recoveries in the LCS/LCSD that were less than the lower control limit. Qualified results are included in Table 3 with reason code LCSL.

**22A0721** - Reporting limits for bromomethane, 2-butanone, chloromethane, 1,4-dioxane, and methyl acetate in sample 360175-HA001001 and its field duplicate 360175-HA001001D were qualified as estimated (UJ) based on percent recoveries in the associated MS/MSD that were less than the lower control limit. Qualified results are included in Table 3 with reason code MSL.

**22C1692** - Reporting limits for naphthalene, acetone, tert-butyl alcohol, 1,2-dibromo-3-chloropropane, and 2-hexanone in sample 360175-DP005011 and its field duplicate 360175-DP005011D were qualified as estimated (UJ) based on percent recoveries in the associated MS/MSD that were less than the lower control limit. Qualified results are included in Table 3 with reason code MSL.

**22A0721 and 22C1692** - Reporting limits in samples 360175-HA003001 (50X) and 360175-DW001-1 (2X) are elevated due to dilutions as indicated in Table 2.

VOCs by TO-15

**22C1819** - Reporting limits for 1,2,4-trichlorobenzene in samples 360175-GV008005, 360175-GV009005D, 360175-GV009005, and 360175-GV016005 were qualified as estimated (UJ) based on a percent recovery in the associated LCS that was less than the lower control limit. Qualified results are included in Table 3 with reason code LCSL.

**22C1819** – Reporting limits in all samples are elevated due to dilutions (4X) as indicated in Table 2.

SVOCs by 8270E

**22C1692** – Sample 360175-DP002011 was incorrectly written on the COC and logged by the laboratory as 360175-DP003011. The sample ID has been corrected in the database.

**22C1692** - Reporting limits for benzidine in samples 360175-DP002011, 360175-DP004011, 360175-DP005011, and 360175-DP005011D were qualified as estimated (UJ) based on initial calibration relative standard deviation (RSD) that exceeded the control limit. Qualified results are included in Table 3 with reason code ICVRSD.

**22C1692** - Reporting limits for 3,3-dichlorobenzidine and 4-chloroaniline in samples 360175-DP002011, 360175-DP004011, 360175-DP005011, and 360175-DP005011D were qualified as estimated (UJ) based on ICV percent differences greater than the control limit and indicating potential low bias. Qualified results are included in Table 3 with reason code ICV%D.

**22C1692** - Reporting limits for aniline, benzidine, hexachlorocyclopentadiene, and pentachlorophenol in samples 360175-DP002011, 360175-DP004011, 360175-DP005011, and 360175-DP005011D were qualified as estimated (UJ) based on CCV percent differences greater than the control limit and indicating potential low bias. Qualified results are included in Table 3 with reason code CCV%D.

**22C1692** - Reporting limits for benzidine, benzoic acid, hexachlorocyclopentadiene, hexachloroethane, n-nitrosodimethylamine, phenol, and pyridine were qualified as estimated (UJ) based on percent recoveries in the LCS/LCSD that exceeded the lower control limit. LCS/LCSD recoveries for benzidine and pyridine also exceeded the LCS/LCSD RPD limit. Qualified results are included in Table 3 with reason codes LCSL and LCSRPD. Non-detect results for benzoic acid in sample 360175-DP005011 and associated field duplicate 360175-DP005011D were subsequently qualified as rejected based on MS/MSD recoveries as described below.

**22C1692** – The non-detect results for benzoic acid in sample 360175-DP005011 and its field duplicate 360175-DP005011D were qualified as rejected (R) based on the associated MS percent recovery (7.7) that was less than the rejection limit of 10. Benzoic acid MS/MSD percent recoveries also exceeded the MS/MSD relative percent difference (RPD) limit. Qualified results are included in Table 3 with reason codes MSL and MSRPD.

**22C1692** - Reporting limits for n-nitrosodimethylamine, phenol, and pyridine in sample 360175-DP005011 and its field duplicate 360175-DP005011D were qualified as

estimated (UJ) based on percent recoveries in the associated MS/MSD that were less than the lower control limit. Qualified results are included in Table 3 with reason code MSL.

Pesticides by 8081B

**22C1692** – Sample 360175-DP002011 was incorrectly written on the COC and logged by the laboratory as 360175-DP003011. The sample ID has been corrected in the database.

PCBs by 8282A

**22C1692** – Sample 360175-DP002011 was incorrectly written on the COC and logged by the laboratory as 360175-DP003011. The sample ID has been corrected in the database.

Metals

**22C1692** – Sample 360175-DP002011 was incorrectly written on the COC and logged by the laboratory as 360175-DP003011. The sample ID has been corrected in the database.

**22C1692** - The method blank has a detection of mercury (0.000093 J mg/L) below the reporting limit. The results for mercury in samples 360175-DP002011, 360175-DP004011, and 360175-DP005011D were qualified as non-detect (U) at the reporting limit. Qualified results are summarized in Table 3 with reason code BL1.

PFAS

**22C1815** - Sample 360175-DP01009 was incorrectly logged by the laboratory as DP01009. The sample ID has been corrected in the database.

**22F0915** - Sample 360175-DP005011 was incorrectly logged by the laboratory as 360175-DP005011-MS/MSD. The sample ID has been corrected in the database.

**22C1815** – The COC for samples 360175-DP01009 and 360175-DP00909 did not indicate that PFAS analysis was requested; however, sample containers were submitted to the lab and analyzed. The project manager confirmed that the correct analysis was performed.

**22C1815** - Reporting limits for 4:2 fluorotelomersulfonic acid (4:2FTS) in samples 360175-DP008011, 360175-DP01009, and 360175-DP01508 were qualified estimated (UJ) based on percent recovery of the associated extracted internal standard less than the 50-150 control limits specified by NYSDEC (NYSDEC, 2019). Qualified results are included in Table 3 with reason code ISL.

**22C1815** – Positive and non-detect results for 6:2 fluorotelomersulfonic acid (6:2FTS) and 8:2 fluorotelomersulfonic acid (8:2FTS) in samples 360175-DP008011 and 360175-DP01009 were qualified estimated (J/UJ) based on percent recovery of the associated extracted internal standard less than the 50-150 control limits specified by NYSDEC. Qualified results are included in Table 3 with reason code ISL.

**22C1815** - Reporting limits for perfluorododecanoic acid (PFDoA), N-EtFOSAA and N-MeFOSAA in samples 360175-DP008011 and 360175-DP01508 were qualified estimated (UJ) based on percent recovery of the associated extracted internal standard less than the 50-150 control limits specified by NYSDEC. Qualified results are included in Table 3 with reason code ISL.

**22C1815** – Positive and non-detect results for perfluorooctanesulfonamide (FOSA) and perfluorobutanoic acid (PFBA) in samples 360175-DP00909 and 360175-DP01508 were qualified estimated (J/UJ) based on percent recovery of the associated extracted internal standard less than the 50-150 control limits specified by NYSDEC. Qualified results are included in Table 3 with reason code ISL.

**22C1815** - Reporting limits for perfluorotetradecanoic acid (PFTeDA) in samples 360175-DP008011, 360175-DP01009, and 360175-DP00909 were qualified estimated (UJ) based on percent recovery of the associated extracted internal standard less than the 50-150 control limits specified by NYSDEC. Qualified results are included in Table 3 with reason code ISL.

**22C1815** – The non-detect result for PFTeDA in sample 360175-DP01508 was qualified rejected (R) based on percent recovery of the associated extracted internal standard less than the rejection limit of 10. The qualified result is included in Table 3 with reason code ISL.

**22F0915** - Results for N-EtFOSAA, PFBA, and FOSA in sample 360175-DP004011 were qualified estimated (J) based on percent recovery of the associated extracted internal standard less than the 50-150 control limits specified by NYSDEC. Qualified results are included in Table 3 with reason code ISL.

**22F0915** - Reporting limits for 4:2FTS and 6:2FTS in samples 360175-MW003D020 and 360175-DP002011 were qualified estimated (UJ) based on percent recovery of the associated extracted internal standard less than the 50-150 control limits specified by NYSDEC. Qualified results are included in Table 3 with reason code ISL.

**22F0915** - Reporting limits for N-MeFOSAA and perfluoroundecanoic acid (PFUnDA) in samples 360175-DP004011 and 360175-DP005011 were qualified estimated (UJ) based on percent recovery of the associated extracted internal standard less than the 50-150 control limits specified by NYSDEC. Qualified results are included in Table 3 with reason code ISL.

**22F0915** - Reporting limits for 4:2FTS, 8:2FTS, and N-EtFOSAA in sample 360175-DP005011 were qualified estimated (UJ) based on percent recovery of the associated extracted internal standard less than the 50-150 control limits specified by NYSDEC. Qualified results are included in Table 3 with reason code ISL.

**22F0915** - Reporting limits for PFDoA and FOSA in sample 360175-DP005011-DUP were qualified estimated (UJ) based on percent recovery of the associated extracted internal standard less than the 50-150 control limits specified by NYSDEC. Qualified results are included in Table 3 with reason code ISL.

**22F0915** – Non-detect results for PFTeDA in samples 360175-DP004011, 360175-DP005011, and 360175-DP005011-DUP were qualified rejected (R) based on percent recovery of the associated extracted internal standard less than the rejection limit. Qualified results are included in Table 3 with reason code ISL.

**22F0915** – Non-detect results for PFDoA in samples 360175-DP004011 and 360175-DP005011 were qualified rejected (R) based on percent recovery of the associated extracted internal standard less than the rejection limit. Qualified results are included in Table 3 with reason code ISL.

**22F0915** – The non-detect result for FOSA in sample 360175-DP005011 was qualified rejected (R) based on percent recovery of the associated extracted internal standard less than the rejection limit. The qualified result is included in Table 3 with reason code ISL.

**22F0915** – The result for N-EtFOSAA in sample 360175-DP004011 was qualified as estimated with potential high bias (J+) based on a percent recovery in the LCS that was greater than the upper control limit. The qualified result is included in Table 3 with reason code LCSH.

**22F0915** - Results for PFBA, perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and perfluoropentanoic acid (PFPeA) in sample 360175-DP005011 and its field duplicate 360175-DP005011-DUP were qualified as estimated with potential high bias (J+) based on percent recoveries in the associated MSD that were greater than the upper control limit. Qualified results are included in Table 3 with reason code MSH.

**Reference:**

NYSDEC, 2005. "Analytical Services Protocols"; July 2005.

NYSDEC, 2010. "Technical Guidance for Site Investigation and Remediation-Appendix 2B"; DER-10; Division of Environmental Remediation; May 2010.

NYSDEC, 2019. “Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids; October 2019.

USEPA, 2014. "Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B and 8260C”; HW-24, Revision 4; USEPA Region II Hazardous Waste Support Section; September 2014.

USEPA, 2016a. “Analysis of Volatile Organic Compounds in Air Contained in Canisters by Method TO-15”; HW-31, Revision 6; Hazardous Waste Support Section; September 2016.

USEPA, 2016b. “ICP-AES Data Validation”; HW-3a, Revision 1; USEPA Region II Hazardous Waste Support Section; September 2016.

Data Validator: Gabrielle Davis



August 23, 2022

Reviewed by: Julie Ricardi



September 9, 2022

**Standard Table Notes:**

Sample Type (QC Code)

FS – field sample

FD – field duplicate

TB – trip blank

EB – equipment blank

FB – field blank

Matrix

GW – ground water

BW – blank water

TW – tap water

SV – soil vapor

SED - sediment

Units

mg/L – milligrams per liter

ng/L – nanograms per liter

µg/L – micrograms per liter

mg/kg – milligrams per kilogram

µg/kg – micrograms per kilogram

µg/$m^3$ – micrograms per cubic meter

Qualifiers

U – not detected above quantitation limit

J – estimated quantity

J+ - estimated quantity, biased high

J- - estimated quantity, biased low

R – data unusable

Fraction

T – total

D – dissolved

N – normal

Qualification Reason Codes

BL1 – method blank qualifier

BL2 – field or trip blank qualifier

CCV – continuing calibration verification recovery outside limits

CCV%D – continuing calibration verification percent difference exceeds goal

CCVRRF – continuing calibration relative response factor low

CI – chromatographic interference present

DCPD – dual column percent difference exceeds limit

E – result exceeds calibration range

FD – field duplicate precision goal exceeded

FP – false positive interference

HT – holding time for prep or analysis exceeded

HTG – holding time for prep or analysis grossly exceeded

ICV – initial calibration verification recovery outside limit

ICVRRF – initial calibration verification relative response factor low

ICVRSD – initial calibration verification % relative standard deviation exceeds goal

ISH – internal standard response greater than limit

ISL – internal standard response less than limit

LCSH – laboratory control sample recovery high

LCSL – laboratory control sample recovery low

LCSRPD – laboratory control sample/duplicate relative % difference precision goal exceeded

LD – lab duplicate precision goal exceeded

MSH – matrix spike and/or MS duplicate recovery high

MSL – matrix spike and/or MS duplicate recovery low

MSRPD – matrix spike/duplicate relative % difference precision goal exceeded

N – analyte identification is not certain

PEM – performance evaluation mixture exceeds limit

PM – sample percent moisture exceeds EPA guideline

SD – serial dilution result exceeds percent difference limit

SP – sample preservation/collection does not meet method requirement

SSH – surrogate recovery high

SSL – surrogate recovery low

TD – dissolved concentration exceeds total

TABLE 1 - SUMMARY OF SAMPLES AND ANALYTICAL METHODS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | **Method Class** | VOCs | VOCs | SVOCs | Pesticides | PCBs | Metals | Mercury | PFAS | PFAS | Total Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **Analysis Method** | 8260D | TO15 | 8270E | 8081B | 8082A | 6010D | 7470A | SOP-454 PFAS | SOP-466 PFAS | SM2540G |
| | | | | | **Fraction** | N | N | N | N | N | N | N | N | N | N |
| **SDG** | **Location** | **Field Sample ID** | **Media** | **Sample Date** | **QC Code** | Parameters | Parameters | Parameters | Parameters | Parameters | Parameters | Parameters | Parameters | Parameters | Parameters |
| 22A0721 | GW-02-13 | 360175-GW002-13 | GW | 1/12/2022 | FS | 60 | | | | | | | | | |
| 22A0721 | GW-02-14 | 360175-GW002-14 | GW | 1/12/2022 | FS | 60 | | | | | | | | | |
| 22A0721 | GW-02-15 | 360175-GW002-15 | GW | 1/12/2022 | FS | 60 | | | | | | | | | |
| 22A0721 | GW-02-16 | 360175-GW002-16 | GW | 1/12/2022 | FS | 60 | | | | | | | | | |
| 22A0721 | Drum-S | WC Drum | D (ug/L) | 1/12/2022 | FS | 60 | | | | | | | | | |
| 22A0721 | Drum-S | WC Drum | D (mg/kg) | 1/12/2022 | FS | 59 | | | | | | | | | |
| 22A0721 | HA-01 | 360175-HA001001 | SOIL | 1/12/2022 | FS | 59 | | | | | | | | | 1 |
| 22A0721 | HA-01 | 360175-HA001001D | SOIL | 1/12/2022 | FD | 59 | | | | | | | | | 1 |
| 22A0721 | HA-02 | 360175-HA002001 | SOIL | 1/12/2022 | FS | 59 | | | | | | | | | 1 |
| 22A0721 | HA-03 | 360175-HA003001 | SOIL | 1/12/2022 | FS | 60 | | | | | | | | | 1 |
| 22A0721 | QC | TB20220112 | BW | 1/12/2022 | TB | 60 | | | | | | | | | |
| 22C1692 | DP-02 | 360175-DP002011 | GW | 3/22/2022 | FS | 78 | | 74 | 22 | 9 | 22 | 1 | | | |
| 22C1692 | DP-04 | 360175-DP004011 | GW | 3/22/2022 | FS | 78 | | 74 | 22 | 9 | 22 | 1 | | | |
| 22C1692 | DP-05 | 360175-DP005011 | GW | 3/22/2022 | FS | 78 | | 74 | 22 | 9 | 22 | 1 | | | |
| 22C1692 | DP-05 | 360175-DP005011D | GW | 3/22/2022 | FD | 78 | | 74 | 22 | 9 | 22 | 1 | | | |
| 22C1692 | QC | 360175-TB32222 | BW | 3/22/2022 | TB | 78 | | | | | | | | | |
| 22C1692 | DW-01 | 360175-DW001-1 | SW | 3/22/2022 | FS | 78 | | | | | | | | | |
| 22C1692 | DW-02 | 360175-DW002-2 | SW | 3/22/2022 | FS | 78 | | | | | | | | | |
| 22C1815 | DP-008 | 360175-DP008011 | GW | 3/23/2022 | FS | | | | | | | | 34 | | |
| 22C1815 | DP-009 | 360175-DP00909 | GW | 3/23/2022 | FS | | | | | | | | 34 | | |
| 22C1815 | DP-010 | 360175-DP01009 | GW | 3/23/2022 | FS | | | | | | | | 34 | | |
| 22C1815 | DP-015 | 360175-DP01508 | GW | 3/23/2022 | FS | | | | | | | | 34 | | |
| 22C1815 | PRB | 360175-PRB | GW | 3/24/2022 | FS | | | | | | | | 34 | | |
| 22C1819 | GV-008 | 360175-GV008005 | SV | 3/23/2022 | FS | | 62 | | | | | | | | |
| 22C1819 | GV-009 | 360175-GV009005 | SV | 3/23/2022 | FS | | 62 | | | | | | | | |
| 22C1819 | GV-009 | 360175-GV009005D | SV | 3/23/2022 | FD | | 62 | | | | | | | | |
| 22C1819 | GV-010 | 360175-GV010005 | SV | 3/24/2022 | FS | | 62 | | | | | | | | |
| 22C1819 | GV-011 | 360175-GV011005 | SV | 3/24/2022 | FS | | 62 | | | | | | | | |
| 22C1819 | GV-012 | 360175-GV012005 | SV | 3/24/2022 | FS | | 62 | | | | | | | | |
| 22C1819 | GV-014 | 360175-GV014005 | SV | 3/25/2022 | FS | | 62 | | | | | | | | |
| 22C1819 | GV-015 | 360175-GV015005 | SV | 3/24/2022 | FS | | 62 | | | | | | | | |
| 22C1819 | GV-016 | 360175-GV016005 | SV | 3/23/2022 | FS | | 62 | | | | | | | | |
| 22C1819 | GV-017 | 360175-GV017005 | SV | 3/24/2022 | FS | | 62 | | | | | | | | |
| 22E1903 | DP-010-09 | 360175-DP01009 | GW | 5/24/2022 | FS | 78 | | | | | | | | | |
| 22E1903 | DP-011-08 | 360175-DP01108 | GW | 5/25/2022 | FS | 78 | | | | | | | | | |
| 22E1903 | DP-012-06 | 360175-DP01206 | GW | 5/26/2022 | FS | 78 | | | | | | | | | |
| 22E1903 | DP-015-010 | 360175-DP015010 | GW | 5/24/2022 | FS | 78 | | | | | | | | | |
| 22E1903 | DP-016-012 | 360175-DP016012 | GW | 5/24/2022 | FS | 78 | | | | | | | | | |
| 22E1903 | DP-017-012 | 360175-DP017012 | GW | 5/24/2022 | FS | 78 | | | | | | | | | |



Created by: KLD 8/10/22
Checked by: GTD 8/22/2022

TABLE 1 - SUMMARY OF SAMPLES AND ANALYTICAL METHODS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | **Method Class** | VOCs | VOCs | SVOCs | Pesticides | PCBs | Metals | Mercury | PFAS | PFAS | Total Solids |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **Analysis Method** | 8260D | TO15 | 8270E | 8081B | 8082A | 6010D | 7470A | SOP-454 PFAS | SOP-466 PFAS | SM2540G |
| | | | | | **Fraction** | N | N | N | N | N | N | N | N | N | N |
| **SDG** | **Location** | **Field Sample ID** | **Media** | **Sample Date** | **QC Code** | Parameters | Parameters | Parameters | Parameters | Parameters | Parameters | Parameters | Parameters | Parameters | Parameters |
| 22E1903 | DP-08-011 | 360175-DP08011 | GW | 5/24/2022 | FS | 78 | | | | | | | | | |
| 22E1903 | QC | 360175-TB522 | BW | 5/26/2022 | TB | 78 | | | | | | | | | |
| 22F0915 | DP-02 | 360175-DP002011 | GW | 6/14/2022 | FS | | | | | | | | 34 | | |
| 22F0915 | DP-04 | 360175-DP004011 | GW | 6/14/2022 | FS | | | | | | | | 34 | | |
| 22F0915 | DP-05 | 360175-DP005011 | GW | 6/14/2022 | FS | | | | | | | | 34 | | |
| 22F0915 | DP-05 | 360175-DP005011-DUP | GW | 6/14/2022 | FD | | | | | | | | 34 | | |
| 22F0915 | MW-03D | 360175-MW003D020 | GW | 6/14/2022 | FS | | | | | | | | 34 | | |
| 22F0915 | WC | 360175-WC | SOIL | 6/14/2022 | FS | | | | | | | | | 34 | 1 |
| 22F1625 | MW-03 | 360175-MW0030020 | GW | 6/24/2022 | FS | 78 | | | | | | | | | |
| 22F1625 | MW-03 | 360175-MW0030020 Dup | GW | 6/24/2022 | FD | 78 | | | | | | | | | |
| 22F1625 | QC | 360175-TB624 | BW | 6/24/2022 | TB | 78 | | | | | | | | | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22A0721 | | 22A0721 | | 22A0721 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | Drum-S | | GW-02-13 | | GW-02-14 | |
| | | | Field Sample Date | 1/12/2022 | | 1/12/2022 | | 1/12/2022 | |
| | | | Field Sample ID | WC Drum | | 360175-GW002-13 | | 360175-GW002-14 | |
| | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 1,1,1,2-Tetrachloroethane | UG/L | | | | | | |
| L | 8260D | 1,1,1-Trichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,2,2-Tetrachloroethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,2-Trichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloropropene | UG/L | | | | | | |
| L | 8260D | 1,2,3-Trichlorobenzene | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | 1,2,3-Trichloropropane | UG/L | | | | | | |
| L | 8260D | 1,2,4-Trichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2,4-Trimethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dibromo-3-chloropropane | UG/L | 5 | U | 5 | UJ | 5 | UJ |
| L | 8260D | 1,2-Dibromoethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,2-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dichloropropane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3,5-Trichlorobenzene | UG/L | | | | | | |
| L | 8260D | 1,3,5-Trimethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3-Dichloropropane | UG/L | | | | | | |
| L | 8260D | 1,4-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,4-Dioxane | UG/L | 50 | U | 50 | U | 50 | U |
| L | 8260D | 2,2-Dichloropropane | UG/L | | | | | | |
| L | 8260D | 2-Butanone | UG/L | 20 | U | 20 | U | 20 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Lab SDG** | 22A0721 | | 22A0721 | | 22A0721 | |
| | | | **Location** | Drum-S | | GW-02-13 | | GW-02-14 | |
| | | | **Field Sample Date** | 1/12/2022 | | 1/12/2022 | | 1/12/2022 | |
| | | | **Field Sample ID** | WC Drum | | 360175-GW002-13 | | 360175-GW002-14 | |
| | | | **Qc Code** | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 2-Chlorotoluene | UG/L | | | | | | |
| L | 8260D | 2-Hexanone | UG/L | 10 | U | 10 | U | 10 | U |
| L | 8260D | 4-Chlorotoluene | UG/L | | | | | | |
| L | 8260D | 4-iso-Propyltoluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 4-Methyl-2-pentanone | UG/L | 10 | U | 10 | U | 10 | U |
| L | 8260D | Acetic acid, methyl ester | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Acetone | UG/L | 7.1 | J | 50 | U | 50 | U |
| L | 8260D | Acrylonitrile | UG/L | | | | | | |
| L | 8260D | Benzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromobenzene | UG/L | | | | | | |
| L | 8260D | Bromochloromethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromodichloromethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Bromoform | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromomethane | UG/L | 5 | U | 5 | UJ | 5 | UJ |
| L | 8260D | Butane, 2-methoxy-2-methyl- | UG/L | | | | | | |
| L | 8260D | Carbon disulfide | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Carbon tetrachloride | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Chlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Chloroethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Chloroform | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Chloromethane | UG/L | 2 | U | 2 | UJ | 2 | UJ |
| L | 8260D | cis-1,2-Dichloroethene | UG/L | 2.3 | | 1 | U | 3.6 | |
| L | 8260D | cis-1,3-Dichloropropene | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Cyclohexane | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Dibromochloromethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22A0721 | | 22A0721 | | 22A0721 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | Drum-S | | GW-02-13 | | GW-02-14 | |
| | | | Field Sample Date | 1/12/2022 | | 1/12/2022 | | 1/12/2022 | |
| | | | Field Sample ID | WC Drum | | 360175-GW002-13 | | 360175-GW002-14 | |
| | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Dibromomethane | UG/L | | | | | | |
| L | 8260D | Dichlorodifluoromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Diethyl ether | UG/L | | | | | | |
| L | 8260D | Ethyl-t-Butyl Ether | UG/L | | | | | | |
| L | 8260D | Ethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Hexachlorobutadiene | UG/L | | | | | | |
| L | 8260D | Isopropyl ether | UG/L | | | | | | |
| L | 8260D | Isopropylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methyl cyclohexane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methyl Tertbutyl Ether | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methylene chloride | UG/L | 5 | U | 5 | U | 1.3 | J+ |
| L | 8260D | n-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Naphthalene | UG/L | 0.47 | J | 2 | UJ | 2 | UJ |
| L | 8260D | Propylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | sec-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Styrene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | t-Butyl alcohol | UG/L | | | | | | |
| L | 8260D | tert-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Tetrachloroethene | UG/L | 65 | | 3.6 | J+ | 220 | J |
| L | 8260D | Tetrahydrofuran | UG/L | | | | | | |
| L | 8260D | Toluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | trans-1,2-Dichloroethene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | trans-1,3-Dichloropropene | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | trans-1,4-Dichloro-2-butene | UG/L | | | | | | |
| L | 8260D | Trichloroethene | UG/L | 1.2 | | 1 | U | 4 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22A0721 | | 22A0721 | | 22A0721 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | Drum-S | | GW-02-13 | | GW-02-14 | |
| | | | **Field Sample Date** | 1/12/2022 | | 1/12/2022 | | 1/12/2022 | |
| | | | **Field Sample ID** | WC Drum | | 360175-GW002-13 | | 360175-GW002-14 | |
| | | | **Qc Code** | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Trichlorofluoromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Vinyl chloride | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Xylene, o | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Xylenes (m&p) | UG/L | 2 | U | 2 | U | 2 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22A0721 | | 22A0721 | | 22A0721 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | GW-02-15 | | GW-02-16 | | QC | |
| | | | **Field Sample Date** | 1/12/2022 | | 1/12/2022 | | 1/12/2022 | |
| | | | **Field Sample ID** | 360175-GW002-15 | | 360175-GW002-16 | | TB20220112 | |
| | | | **Qc Code** | FS | | FS | | TB | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 1,1,1,2-Tetrachloroethane | UG/L | | | | | | |
| L | 8260D | 1,1,1-Trichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,2,2-Tetrachloroethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,2-Trichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloropropene | UG/L | | | | | | |
| L | 8260D | 1,2,3-Trichlorobenzene | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | 1,2,3-Trichloropropane | UG/L | | | | | | |
| L | 8260D | 1,2,4-Trichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2,4-Trimethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dibromo-3-chloropropane | UG/L | 5 | UJ | 5 | UJ | 5 | U |
| L | 8260D | 1,2-Dibromoethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,2-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dichloropropane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3,5-Trichlorobenzene | UG/L | | | | | | |
| L | 8260D | 1,3,5-Trimethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3-Dichloropropane | UG/L | | | | | | |
| L | 8260D | 1,4-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,4-Dioxane | UG/L | 50 | U | 50 | U | 50 | U |
| L | 8260D | 2,2-Dichloropropane | UG/L | | | | | | |
| L | 8260D | 2-Butanone | UG/L | 20 | U | 20 | U | 20 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22A0721 | | 22A0721 | | 22A0721 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | GW-02-15 | | GW-02-16 | | QC | |
| | | | Field Sample Date | 1/12/2022 | | 1/12/2022 | | 1/12/2022 | |
| | | | Field Sample ID | 360175-GW002-15 | | 360175-GW002-16 | | TB20220112 | |
| | | | Qc Code | FS | | FS | | TB | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 2-Chlorotoluene | UG/L | | | | | | |
| L | 8260D | 2-Hexanone | UG/L | 10 | U | 10 | U | 10 | U |
| L | 8260D | 4-Chlorotoluene | UG/L | | | | | | |
| L | 8260D | 4-iso-Propyltoluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 4-Methyl-2-pentanone | UG/L | 10 | U | 10 | U | 10 | U |
| L | 8260D | Acetic acid, methyl ester | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Acetone | UG/L | 50 | U | 50 | U | 50 | U |
| L | 8260D | Acrylonitrile | UG/L | | | | | | |
| L | 8260D | Benzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromobenzene | UG/L | | | | | | |
| L | 8260D | Bromochloromethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromodichloromethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Bromoform | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromomethane | UG/L | 5 | UJ | 5 | UJ | 5 | U |
| L | 8260D | Butane, 2-methoxy-2-methyl- | UG/L | | | | | | |
| L | 8260D | Carbon disulfide | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Carbon tetrachloride | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Chlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Chloroethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Chloroform | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Chloromethane | UG/L | 2 | UJ | 2 | UJ | 2 | U |
| L | 8260D | cis-1,2-Dichloroethene | UG/L | 4.8 | | 20 | | 1 | U |
| L | 8260D | cis-1,3-Dichloropropene | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Cyclohexane | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Dibromochloromethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22A0721 | | 22A0721 | | 22A0721 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | GW-02-15 | | GW-02-16 | | QC | |
| | | | Field Sample Date | 1/12/2022 | | 1/12/2022 | | 1/12/2022 | |
| | | | Field Sample ID | 360175-GW002-15 | | 360175-GW002-16 | | TB20220112 | |
| | | | Qc Code | FS | | FS | | TB | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Dibromomethane | UG/L | | | | | | |
| L | 8260D | Dichlorodifluoromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Diethyl ether | UG/L | | | | | | |
| L | 8260D | Ethyl-t-Butyl Ether | UG/L | | | | | | |
| L | 8260D | Ethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Hexachlorobutadiene | UG/L | | | | | | |
| L | 8260D | Isopropyl ether | UG/L | | | | | | |
| L | 8260D | Isopropylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methyl cyclohexane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methyl Tertbutyl Ether | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methylene chloride | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | n-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Naphthalene | UG/L | 2 | UJ | 2 | UJ | 2 | U |
| L | 8260D | Propylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | sec-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Styrene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | t-Butyl alcohol | UG/L | | | | | | |
| L | 8260D | tert-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Tetrachloroethene | UG/L | 120 | J+ | 2500 | J | 1 | U |
| L | 8260D | Tetrahydrofuran | UG/L | | | | | | |
| L | 8260D | Toluene | UG/L | 1 | U | 1 | U | 0.51 | J |
| L | 8260D | trans-1,2-Dichloroethene | UG/L | 1 | | 1 | U | 1 | U |
| L | 8260D | trans-1,3-Dichloropropene | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | trans-1,4-Dichloro-2-butene | UG/L | | | | | | |
| L | 8260D | Trichloroethene | UG/L | 8.2 | | 28 | | 1 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22A0721 | | 22A0721 | | 22A0721 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | GW-02-15 | | GW-02-16 | | QC | |
| | | | **Field Sample Date** | 1/12/2022 | | 1/12/2022 | | 1/12/2022 | |
| | | | **Field Sample ID** | 360175-GW002-15 | | 360175-GW002-16 | | TB20220112 | |
| | | | **Qc Code** | FS | | FS | | TB | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Trichlorofluoromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Vinyl chloride | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Xylene, o | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Xylenes (m&p) | UG/L | 2 | U | 2 | U | 0.27 | J |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1692 | | 22C1692 | | 22C1692 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | DP-02 | | DP-04 | | DP-05 | |
| | | | Field Sample Date | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | | Field Sample ID | 360175-DP002011 | | 360175-DP004011 | | 360175-DP005011 | |
| | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 1,1,1,2-Tetrachloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,1-Trichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,2,2-Tetrachloroethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,2-Trichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloropropene | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | 1,2,3-Trichlorobenzene | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | 1,2,3-Trichloropropane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | 1,2,4-Trichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2,4-Trimethylbenzene | UG/L | 1 | U | 2.9 | | 1 | U |
| L | 8260D | 1,2-Dibromo-3-chloropropane | UG/L | 5 | U | 5 | U | 5 | UJ |
| L | 8260D | 1,2-Dibromoethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,2-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dichloropropane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3,5-Trichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3,5-Trimethylbenzene | UG/L | 1 | U | 0.53 | J | 1 | U |
| L | 8260D | 1,3-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3-Dichloropropane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,4-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,4-Dioxane | UG/L | 50 | UJ | 50 | UJ | 50 | UJ |
| L | 8260D | 2,2-Dichloropropane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 2-Butanone | UG/L | 20 | UJ | 20 | UJ | 20 | UJ |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1692 | | 22C1692 | | 22C1692 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | DP-02 | | DP-04 | | DP-05 | |
| | | | Field Sample Date | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | | Field Sample ID | 360175-DP002011 | | 360175-DP004011 | | 360175-DP005011 | |
| | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 2-Chlorotoluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 2-Hexanone | UG/L | 10 | UJ | 10 | UJ | 10 | UJ |
| L | 8260D | 4-Chlorotoluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 4-iso-Propyltoluene | UG/L | 1 | U | 0.38 | J | 1 | U |
| L | 8260D | 4-Methyl-2-pentanone | UG/L | 10 | U | 10 | U | 10 | U |
| L | 8260D | Acetic acid, methyl ester | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Acetone | UG/L | 50 | UJ | 50 | UJ | 50 | UJ |
| L | 8260D | Acrylonitrile | UG/L | 5 | UJ | 5 | UJ | 5 | UJ |
| L | 8260D | Benzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromochloromethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromodichloromethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Bromoform | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromomethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Butane, 2-methoxy-2-methyl- | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Carbon disulfide | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Carbon tetrachloride | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Chlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Chloroethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Chloroform | UG/L | 0.53 | J | 2 | U | 2 | U |
| L | 8260D | Chloromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | cis-1,2-Dichloroethene | UG/L | 1 | U | 1.3 | | 0.27 | J |
| L | 8260D | cis-1,3-Dichloropropene | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Cyclohexane | UG/L | | | | | | |
| L | 8260D | Dibromochloromethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1692 | | 22C1692 | | 22C1692 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | DP-02 | | DP-04 | | DP-05 | |
| | | | Field Sample Date | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | | Field Sample ID | 360175-DP002011 | | 360175-DP004011 | | 360175-DP005011 | |
| | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Dibromomethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Dichlorodifluoromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Diethyl ether | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Ethyl-t-Butyl Ether | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Ethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Hexachlorobutadiene | UG/L | 0.6 | U | 0.6 | U | 0.6 | U |
| L | 8260D | Isopropyl ether | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Isopropylbenzene | UG/L | 1 | U | 0.33 | J | 1 | U |
| L | 8260D | Methyl cyclohexane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methyl Tertbutyl Ether | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methylene chloride | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | n-Butylbenzene | UG/L | 1 | U | 0.68 | J | 1 | U |
| L | 8260D | Naphthalene | UG/L | 2 | UJ | 0.61 | J- | 2 | UJ |
| L | 8260D | Propylbenzene | UG/L | 1 | U | 0.42 | J | 1 | U |
| L | 8260D | sec-Butylbenzene | UG/L | 1 | U | 0.99 | J | 1 | U |
| L | 8260D | Styrene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | t-Butyl alcohol | UG/L | 20 | UJ | 92 | J- | 20 | UJ |
| L | 8260D | tert-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Tetrachloroethene | UG/L | 0.5 | J | 1 | U | 0.94 | J |
| L | 8260D | Tetrahydrofuran | UG/L | 10 | U | 10 | U | 10 | U |
| L | 8260D | Toluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | trans-1,2-Dichloroethene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | trans-1,3-Dichloropropene | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | trans-1,4-Dichloro-2-butene | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Trichloroethene | UG/L | 1 | U | 0.31 | J | 0.28 | J |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22C1692 | | 22C1692 | | 22C1692 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | DP-02 | | DP-04 | | DP-05 | |
| | | | **Field Sample Date** | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | | **Field Sample ID** | 360175-DP002011 | | 360175-DP004011 | | 360175-DP005011 | |
| | | | **Qc Code** | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Trichlorofluoromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Vinyl chloride | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Xylene, o | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Xylenes (m&p) | UG/L | 2 | U | 2 | U | 2 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1692 | | 22C1692 | | 22C1692 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | DP-05 | | DW-01 | | DW-02 | |
| | | | Field Sample Date | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | | Field Sample ID | 360175-DP005011D | | 360175-DW001-1 | | 360175-DW002-2 | |
| | | | Qc Code | FD | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 1,1,1,2-Tetrachloroethane | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 1,1,1-Trichloroethane | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 1,1,2,2-Tetrachloroethane | UG/L | 0.5 | U | 1 | U | 0.5 | U |
| L | 8260D | 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 1,1,2-Trichloroethane | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethane | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethene | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 1,1-Dichloropropene | UG/L | 2 | U | 4 | U | 2 | U |
| L | 8260D | 1,2,3-Trichlorobenzene | UG/L | 5 | U | 10 | U | 5 | U |
| L | 8260D | 1,2,3-Trichloropropane | UG/L | 2 | U | 4 | U | 2 | U |
| L | 8260D | 1,2,4-Trichlorobenzene | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 1,2,4-Trimethylbenzene | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 1,2-Dibromo-3-chloropropane | UG/L | 5 | UJ | 10 | U | 5 | U |
| L | 8260D | 1,2-Dibromoethane | UG/L | 0.5 | U | 1 | U | 0.5 | U |
| L | 8260D | 1,2-Dichlorobenzene | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 1,2-Dichloroethane | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 1,2-Dichloropropane | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 1,3,5-Trichlorobenzene | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 1,3,5-Trimethylbenzene | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 1,3-Dichlorobenzene | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 1,3-Dichloropropane | UG/L | 0.5 | U | 1 | U | 0.5 | U |
| L | 8260D | 1,4-Dichlorobenzene | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 1,4-Dioxane | UG/L | 50 | UJ | 100 | UJ | 50 | UJ |
| L | 8260D | 2,2-Dichloropropane | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 2-Butanone | UG/L | 20 | UJ | 40 | UJ | 20 | UJ |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Lab SDG** | 22C1692 | | 22C1692 | | 22C1692 | |
| | | | **Location** | DP-05 | | DW-01 | | DW-02 | |
| | | | **Field Sample Date** | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | | **Field Sample ID** | 360175-DP005011D | | 360175-DW001-1 | | 360175-DW002-2 | |
| | | | **Qc Code** | FD | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 2-Chlorotoluene | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 2-Hexanone | UG/L | 10 | UJ | 20 | UJ | 10 | UJ |
| L | 8260D | 4-Chlorotoluene | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 4-iso-Propyltoluene | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | 4-Methyl-2-pentanone | UG/L | 10 | U | 20 | U | 10 | U |
| L | 8260D | Acetic acid, methyl ester | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | Acetone | UG/L | 50 | UJ | 100 | UJ | 50 | UJ |
| L | 8260D | Acrylonitrile | UG/L | 5 | UJ | 10 | UJ | 5 | UJ |
| L | 8260D | Benzene | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | Bromobenzene | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | Bromochloromethane | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | Bromodichloromethane | UG/L | 0.5 | U | 1 | U | 0.5 | U |
| L | 8260D | Bromoform | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | Bromomethane | UG/L | 2 | U | 4 | U | 2 | U |
| L | 8260D | Butane, 2-methoxy-2-methyl- | UG/L | 0.5 | U | 1 | U | 0.5 | U |
| L | 8260D | Carbon disulfide | UG/L | 5 | U | 10 | U | 5 | U |
| L | 8260D | Carbon tetrachloride | UG/L | 5 | U | 10 | U | 5 | U |
| L | 8260D | Chlorobenzene | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | Chloroethane | UG/L | 2 | U | 4 | U | 2 | U |
| L | 8260D | Chloroform | UG/L | 2 | U | 4 | U | 2 | U |
| L | 8260D | Chloromethane | UG/L | 2 | U | 4 | U | 2 | U |
| L | 8260D | cis-1,2-Dichloroethene | UG/L | 1 | U | 2 | U | 8.3 | |
| L | 8260D | cis-1,3-Dichloropropene | UG/L | 0.5 | U | 1 | U | 0.5 | U |
| L | 8260D | Cyclohexane | UG/L | | | | | | |
| L | 8260D | Dibromochloromethane | UG/L | 0.5 | U | 1 | U | 0.5 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
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JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | Lab SDG | 22C1692 | | 22C1692 | | 22C1692 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Location | DP-05 | | DW-01 | | DW-02 | |
| | | | | Field Sample Date | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | | | Field Sample ID | 360175-DP005011D | | 360175-DW001-1 | | 360175-DW002-2 | |
| | | | | Qc Code | FD | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Dibromomethane | UG/L | | 1 | U | 2 | U | 1 | U |
| L | 8260D | Dichlorodifluoromethane | UG/L | | 2 | U | 4 | U | 2 | U |
| L | 8260D | Diethyl ether | UG/L | | 2 | U | 4 | U | 2 | U |
| L | 8260D | Ethyl-t-Butyl Ether | UG/L | | 0.5 | U | 1 | U | 0.5 | U |
| L | 8260D | Ethylbenzene | UG/L | | 1 | U | 2 | U | 1 | U |
| L | 8260D | Hexachlorobutadiene | UG/L | | 0.6 | U | 1.2 | U | 0.6 | U |
| L | 8260D | Isopropyl ether | UG/L | | 0.5 | U | 1 | U | 0.5 | U |
| L | 8260D | Isopropylbenzene | UG/L | | 1 | U | 2 | U | 1 | U |
| L | 8260D | Methyl cyclohexane | UG/L | | 1 | U | 2 | U | 1 | U |
| L | 8260D | Methyl Tertbutyl Ether | UG/L | | 1 | U | 2 | U | 1 | U |
| L | 8260D | Methylene chloride | UG/L | | 5 | U | 10 | U | 5 | U |
| L | 8260D | n-Butylbenzene | UG/L | | 1 | U | 2 | U | 1 | U |
| L | 8260D | Naphthalene | UG/L | | 2 | UJ | 4 | UJ | 2 | UJ |
| L | 8260D | Propylbenzene | UG/L | | 1 | U | 2 | U | 1 | U |
| L | 8260D | sec-Butylbenzene | UG/L | | 1 | U | 2 | U | 1 | U |
| L | 8260D | Styrene | UG/L | | 1 | U | 2 | U | 1 | U |
| L | 8260D | t-Butyl alcohol | UG/L | | 20 | UJ | 40 | UJ | 20 | UJ |
| L | 8260D | tert-Butylbenzene | UG/L | | 1 | U | 2 | U | 1 | U |
| L | 8260D | Tetrachloroethene | UG/L | | 0.86 | J | 150 | | 2 | |
| L | 8260D | Tetrahydrofuran | UG/L | | 10 | U | 20 | U | 10 | U |
| L | 8260D | Toluene | UG/L | | 1 | U | 2 | U | 1 | U |
| L | 8260D | trans-1,2-Dichloroethene | UG/L | | 1 | U | 2 | U | 1 | U |
| L | 8260D | trans-1,3-Dichloropropene | UG/L | | 0.5 | U | 1 | U | 0.5 | U |
| L | 8260D | trans-1,4-Dichloro-2-butene | UG/L | | 2 | U | 4 | U | 2 | U |
| L | 8260D | Trichloroethene | UG/L | | 0.31 | J | 0.66 | J | 5.2 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
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JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22C1692 | | 22C1692 | | 22C1692 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | DP-05 | | DW-01 | | DW-02 | |
| | | | **Field Sample Date** | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | | **Field Sample ID** | 360175-DP005011D | | 360175-DW001-1 | | 360175-DW002-2 | |
| | | | **Qc Code** | FD | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Trichlorofluoromethane | UG/L | 2 | U | 4 | U | 2 | U |
| L | 8260D | Vinyl chloride | UG/L | 2 | U | 4 | U | 2 | U |
| L | 8260D | Xylene, o | UG/L | 1 | U | 2 | U | 1 | U |
| L | 8260D | Xylenes (m&p) | UG/L | 2 | U | 4 | U | 2 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1692 | | 22E1903 | | 22E1903 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | QC | | DP-010-09 | | DP-011-08 | |
| | | | Field Sample Date | 3/22/2022 | | 5/24/2022 | | 5/25/2022 | |
| | | | Field Sample ID | 360175-TB32222 | | 360175-DP01009 | | 360175-DP01108 | |
| | | | Qc Code | TB | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 1,1,1,2-Tetrachloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,1-Trichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,2,2-Tetrachloroethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,2-Trichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloropropene | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | 1,2,3-Trichlorobenzene | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | 1,2,3-Trichloropropane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | 1,2,4-Trichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2,4-Trimethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dibromo-3-chloropropane | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | 1,2-Dibromoethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,2-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dichloropropane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3,5-Trichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3,5-Trimethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3-Dichloropropane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,4-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,4-Dioxane | UG/L | 50 | U | 50 | U | 50 | U |
| L | 8260D | 2,2-Dichloropropane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 2-Butanone | UG/L | 20 | U | 2.3 | J- | 20 | UJ |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | Lab SDG | 22C1692 | | 22E1903 | | 22E1903 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Location | QC | | DP-010-09 | | DP-011-08 | |
| | | | | Field Sample Date | 3/22/2022 | | 5/24/2022 | | 5/25/2022 | |
| | | | | Field Sample ID | 360175-TB32222 | | 360175-DP01009 | | 360175-DP01108 | |
| | | | | Qc Code | TB | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 2-Chlorotoluene | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | 2-Hexanone | UG/L | | 10 | U | 10 | UJ | 10 | UJ |
| L | 8260D | 4-Chlorotoluene | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | 4-iso-Propyltoluene | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | 4-Methyl-2-pentanone | UG/L | | 10 | U | 10 | U | 10 | U |
| L | 8260D | Acetic acid, methyl ester | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | Acetone | UG/L | | 50 | U | 12 | J | 2.8 | J |
| L | 8260D | Acrylonitrile | UG/L | | 5 | U | 5 | U | 5 | U |
| L | 8260D | Benzene | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromobenzene | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromochloromethane | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromodichloromethane | UG/L | | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Bromoform | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromomethane | UG/L | | 2 | U | 2 | U | 2 | U |
| L | 8260D | Butane, 2-methoxy-2-methyl- | UG/L | | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Carbon disulfide | UG/L | | 5 | U | 5 | U | 5 | U |
| L | 8260D | Carbon tetrachloride | UG/L | | 5 | U | 5 | U | 5 | U |
| L | 8260D | Chlorobenzene | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | Chloroethane | UG/L | | 2 | U | 2 | U | 2 | U |
| L | 8260D | Chloroform | UG/L | | 2 | U | 2 | U | 2 | U |
| L | 8260D | Chloromethane | UG/L | | 2 | U | 2 | U | 2 | U |
| L | 8260D | cis-1,2-Dichloroethene | UG/L | | 1 | U | 0.23 | J | 0.2 | J |
| L | 8260D | cis-1,3-Dichloropropene | UG/L | | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Cyclohexane | UG/L | | | | | | | |
| L | 8260D | Dibromochloromethane | UG/L | | 0.5 | U | 0.5 | U | 0.5 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1692 | | 22E1903 | | 22E1903 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | QC | | DP-010-09 | | DP-011-08 | |
| | | | Field Sample Date | 3/22/2022 | | 5/24/2022 | | 5/25/2022 | |
| | | | Field Sample ID | 360175-TB32222 | | 360175-DP01009 | | 360175-DP01108 | |
| | | | Qc Code | TB | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Dibromomethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Dichlorodifluoromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Diethyl ether | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Ethyl-t-Butyl Ether | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Ethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Hexachlorobutadiene | UG/L | 0.6 | U | 0.6 | U | 0.6 | U |
| L | 8260D | Isopropyl ether | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Isopropylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methyl cyclohexane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methyl Tertbutyl Ether | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methylene chloride | UG/L | 5 | U | 5 | UJ | 5 | UJ |
| L | 8260D | n-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Naphthalene | UG/L | 2 | U | 2 | UJ | 2 | UJ |
| L | 8260D | Propylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | sec-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Styrene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | t-Butyl alcohol | UG/L | 20 | U | 20 | UJ | 20 | UJ |
| L | 8260D | tert-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Tetrachloroethene | UG/L | 1 | U | 7.3 | | 0.59 | J |
| L | 8260D | Tetrahydrofuran | UG/L | 10 | U | 10 | U | 10 | U |
| L | 8260D | Toluene | UG/L | 1 | U | 0.3 | J | 1 | U |
| L | 8260D | trans-1,2-Dichloroethene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | trans-1,3-Dichloropropene | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | trans-1,4-Dichloro-2-butene | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Trichloroethene | UG/L | 1 | U | 0.25 | J | 0.21 | J |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22C1692 | | 22E1903 | | 22E1903 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | QC | | DP-010-09 | | DP-011-08 | |
| | | | **Field Sample Date** | 3/22/2022 | | 5/24/2022 | | 5/25/2022 | |
| | | | **Field Sample ID** | 360175-TB32222 | | 360175-DP01009 | | 360175-DP01108 | |
| | | | **Qc Code** | TB | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Trichlorofluoromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Vinyl chloride | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Xylene, o | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Xylenes (m&p) | UG/L | 2 | U | 2 | U | 2 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Lab SDG** | 22E1903 | | 22E1903 | | 22E1903 | |
| | | | **Location** | DP-012-06 | | DP-015-010 | | DP-016-012 | |
| | | | **Field Sample Date** | 5/26/2022 | | 5/24/2022 | | 5/24/2022 | |
| | | | **Field Sample ID** | 360175-DP01206 | | 360175-DP015010 | | 360175-DP016012 | |
| | | | **Qc Code** | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 1,1,1,2-Tetrachloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,1-Trichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,2,2-Tetrachloroethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,2-Trichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloropropene | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | 1,2,3-Trichlorobenzene | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | 1,2,3-Trichloropropane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | 1,2,4-Trichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2,4-Trimethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dibromo-3-chloropropane | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | 1,2-Dibromoethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,2-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dichloropropane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3,5-Trichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3,5-Trimethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3-Dichloropropane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,4-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,4-Dioxane | UG/L | 50 | U | 50 | U | 50 | U |
| L | 8260D | 2,2-Dichloropropane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 2-Butanone | UG/L | 20 | UJ | 20 | UJ | 20 | UJ |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Lab SDG** | 22E1903 | | 22E1903 | | 22E1903 | |
| | | | **Location** | DP-012-06 | | DP-015-010 | | DP-016-012 | |
| | | | **Field Sample Date** | 5/26/2022 | | 5/24/2022 | | 5/24/2022 | |
| | | | **Field Sample ID** | 360175-DP01206 | | 360175-DP015010 | | 360175-DP016012 | |
| | | | **Qc Code** | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 2-Chlorotoluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 2-Hexanone | UG/L | 10 | UJ | 10 | UJ | 10 | UJ |
| L | 8260D | 4-Chlorotoluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 4-iso-Propyltoluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 4-Methyl-2-pentanone | UG/L | 10 | U | 10 | U | 10 | U |
| L | 8260D | Acetic acid, methyl ester | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Acetone | UG/L | 3.2 | J | 8.3 | J | 7.2 | J |
| L | 8260D | Acrylonitrile | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Benzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromochloromethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromodichloromethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Bromoform | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromomethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Butane, 2-methoxy-2-methyl- | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Carbon disulfide | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Carbon tetrachloride | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Chlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Chloroethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Chloroform | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Chloromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | cis-1,2-Dichloroethene | UG/L | 1 | U | 1 | U | 0.89 | J |
| L | 8260D | cis-1,3-Dichloropropene | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Cyclohexane | UG/L | | | | | | |
| L | 8260D | Dibromochloromethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | Lab SDG | 22E1903 | | 22E1903 | | 22E1903 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Location | DP-012-06 | | DP-015-010 | | DP-016-012 | |
| | | | | Field Sample Date | 5/26/2022 | | 5/24/2022 | | 5/24/2022 | |
| | | | | Field Sample ID | 360175-DP01206 | | 360175-DP015010 | | 360175-DP016012 | |
| | | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Dibromomethane | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | Dichlorodifluoromethane | UG/L | | 2 | U | 2 | U | 2 | U |
| L | 8260D | Diethyl ether | UG/L | | 2 | U | 2 | U | 2 | U |
| L | 8260D | Ethyl-t-Butyl Ether | UG/L | | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Ethylbenzene | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | Hexachlorobutadiene | UG/L | | 0.6 | U | 0.6 | U | 0.6 | U |
| L | 8260D | Isopropyl ether | UG/L | | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Isopropylbenzene | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methyl cyclohexane | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methyl Tertbutyl Ether | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methylene chloride | UG/L | | 5 | UJ | 5 | UJ | 5 | UJ |
| L | 8260D | n-Butylbenzene | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | Naphthalene | UG/L | | 2 | UJ | 2 | UJ | 2 | UJ |
| L | 8260D | Propylbenzene | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | sec-Butylbenzene | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | Styrene | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | t-Butyl alcohol | UG/L | | 20 | UJ | 20 | UJ | 20 | UJ |
| L | 8260D | tert-Butylbenzene | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | Tetrachloroethene | UG/L | | 1 | U | 1 | U | 4.7 | |
| L | 8260D | Tetrahydrofuran | UG/L | | 10 | U | 10 | U | 10 | U |
| L | 8260D | Toluene | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | trans-1,2-Dichloroethene | UG/L | | 1 | U | 1 | U | 1 | U |
| L | 8260D | trans-1,3-Dichloropropene | UG/L | | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | trans-1,4-Dichloro-2-butene | UG/L | | 2 | U | 2 | U | 2 | U |
| L | 8260D | Trichloroethene | UG/L | | 1 | U | 1 | U | 1.1 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22E1903 | | 22E1903 | | 22E1903 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | DP-012-06 | | DP-015-010 | | DP-016-012 | |
| | | | **Field Sample Date** | 5/26/2022 | | 5/24/2022 | | 5/24/2022 | |
| | | | **Field Sample ID** | 360175-DP01206 | | 360175-DP015010 | | 360175-DP016012 | |
| | | | **Qc Code** | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Trichlorofluoromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Vinyl chloride | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Xylene, o | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Xylenes (m&p) | UG/L | 2 | U | 2 | U | 2 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22E1903 | | 22E1903 | | 22E1903 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | DP-017-012 | | DP-08-011 | | QC | |
| | | | Field Sample Date | 5/24/2022 | | 5/24/2022 | | 5/26/2022 | |
| | | | Field Sample ID | 360175-DP017012 | | 360175-DP08011 | | 360175-TB522 | |
| | | | Qc Code | FS | | FS | | TB | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 1,1,1,2-Tetrachloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,1-Trichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,2,2-Tetrachloroethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,2-Trichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloropropene | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | 1,2,3-Trichlorobenzene | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | 1,2,3-Trichloropropane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | 1,2,4-Trichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2,4-Trimethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dibromo-3-chloropropane | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | 1,2-Dibromoethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,2-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dichloropropane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3,5-Trichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3,5-Trimethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3-Dichloropropane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,4-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,4-Dioxane | UG/L | 50 | U | 50 | U | 50 | U |
| L | 8260D | 2,2-Dichloropropane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 2-Butanone | UG/L | 20 | UJ | 20 | UJ | 20 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Lab SDG** | 22E1903 | | 22E1903 | | 22E1903 | |
| | | | **Location** | DP-017-012 | | DP-08-011 | | QC | |
| | | | **Field Sample Date** | 5/24/2022 | | 5/24/2022 | | 5/26/2022 | |
| | | | **Field Sample ID** | 360175-DP017012 | | 360175-DP08011 | | 360175-TB522 | |
| | | | **Qc Code** | FS | | FS | | TB | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 2-Chlorotoluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 2-Hexanone | UG/L | 10 | UJ | 10 | UJ | 10 | U |
| L | 8260D | 4-Chlorotoluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 4-iso-Propyltoluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 4-Methyl-2-pentanone | UG/L | 10 | U | 10 | U | 10 | U |
| L | 8260D | Acetic acid, methyl ester | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Acetone | UG/L | 8.1 | J | 3.2 | J | 50 | U |
| L | 8260D | Acrylonitrile | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Benzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromochloromethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromodichloromethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Bromoform | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromomethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Butane, 2-methoxy-2-methyl- | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Carbon disulfide | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Carbon tetrachloride | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Chlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Chloroethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Chloroform | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Chloromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | cis-1,2-Dichloroethene | UG/L | 1 | U | 7.1 | | 1 | U |
| L | 8260D | cis-1,3-Dichloropropene | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Cyclohexane | UG/L | | | | | | |
| L | 8260D | Dibromochloromethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | **Lab SDG** | 22E1903 | | 22E1903 | | 22E1903 | |
|---|---|---|---|---|---|---|---|---|
| | | **Location** | DP-017-012 | | DP-08-011 | | QC | |
| | | **Field Sample Date** | 5/24/2022 | | 5/24/2022 | | 5/26/2022 | |
| | | **Field Sample ID** | 360175-DP017012 | | 360175-DP08011 | | 360175-TB522 | |
| | | **Qc Code** | FS | | FS | | TB | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Dibromomethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Dichlorodifluoromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Diethyl ether | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Ethyl-t-Butyl Ether | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Ethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Hexachlorobutadiene | UG/L | 0.6 | U | 0.6 | U | 0.6 | U |
| L | 8260D | Isopropyl ether | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Isopropylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methyl cyclohexane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methyl Tertbutyl Ether | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methylene chloride | UG/L | 5 | UJ | 5 | UJ | 5 | U |
| L | 8260D | n-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Naphthalene | UG/L | 2 | UJ | 2 | UJ | 2 | U |
| L | 8260D | Propylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | sec-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Styrene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | t-Butyl alcohol | UG/L | 20 | UJ | 20 | UJ | 20 | U |
| L | 8260D | tert-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Tetrachloroethene | UG/L | 1.2 | | 7.5 | | 1 | U |
| L | 8260D | Tetrahydrofuran | UG/L | 1.8 | J | 10 | U | 10 | U |
| L | 8260D | Toluene | UG/L | 0.29 | J | 1 | U | 1 | U |
| L | 8260D | trans-1,2-Dichloroethene | UG/L | 1 | U | 0.7 | J | 1 | U |
| L | 8260D | trans-1,3-Dichloropropene | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | trans-1,4-Dichloro-2-butene | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Trichloroethene | UG/L | 1 | U | 6.2 | | 1 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22E1903 | | 22E1903 | | 22E1903 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | DP-017-012 | | DP-08-011 | | QC | |
| | | | **Field Sample Date** | 5/24/2022 | | 5/24/2022 | | 5/26/2022 | |
| | | | **Field Sample ID** | 360175-DP017012 | | 360175-DP08011 | | 360175-TB522 | |
| | | | **Qc Code** | FS | | FS | | TB | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Trichlorofluoromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Vinyl chloride | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Xylene, o | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Xylenes (m&p) | UG/L | 2 | U | 2 | U | 2 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22F1625 | | 22F1625 | | 22F1625 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | MW-03 | | MW-03 | | QC | |
| | | | Field Sample Date | 6/24/2022 | | 6/24/2022 | | 6/24/2022 | |
| | | | Field Sample ID | 360175-MW0030020 | | 360175-MW0030020 Dup | | 360175-TB624 | |
| | | | Qc Code | FS | | FD | | TB | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 1,1,1,2-Tetrachloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,1-Trichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,2,2-Tetrachloroethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1,2-Trichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloroethene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,1-Dichloropropene | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | 1,2,3-Trichlorobenzene | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | 1,2,3-Trichloropropane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | 1,2,4-Trichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2,4-Trimethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dibromo-3-chloropropane | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | 1,2-Dibromoethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,2-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dichloroethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,2-Dichloropropane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3,5-Trichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3,5-Trimethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,3-Dichloropropane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | 1,4-Dichlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 1,4-Dioxane | UG/L | 50 | UJ | 50 | UJ | 50 | U |
| L | 8260D | 2,2-Dichloropropane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 2-Butanone | UG/L | 20 | UJ | 20 | UJ | 20 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Lab SDG** | 22F1625 | | 22F1625 | | 22F1625 | |
| | | | **Location** | MW-03 | | MW-03 | | QC | |
| | | | **Field Sample Date** | 6/24/2022 | | 6/24/2022 | | 6/24/2022 | |
| | | | **Field Sample ID** | 360175-MW0030020 | | 360175-MW0030020 Dup | | 360175-TB624 | |
| | | | **Qc Code** | FS | | FD | | TB | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | 2-Chlorotoluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 2-Hexanone | UG/L | 10 | UJ | 10 | UJ | 10 | U |
| L | 8260D | 4-Chlorotoluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 4-iso-Propyltoluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | 4-Methyl-2-pentanone | UG/L | 10 | U | 10 | U | 10 | U |
| L | 8260D | Acetic acid, methyl ester | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Acetone | UG/L | 50 | UJ | 50 | UJ | 50 | U |
| L | 8260D | Acrylonitrile | UG/L | 5 | UJ | 5 | UJ | 5 | U |
| L | 8260D | Benzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromochloromethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromodichloromethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Bromoform | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Bromomethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Butane, 2-methoxy-2-methyl- | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Carbon disulfide | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Carbon tetrachloride | UG/L | 5 | U | 5 | U | 5 | U |
| L | 8260D | Chlorobenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Chloroethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Chloroform | UG/L | 2 | U | 0.22 | J | 2 | U |
| L | 8260D | Chloromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | cis-1,2-Dichloroethene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | cis-1,3-Dichloropropene | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Cyclohexane | UG/L | | | | | | |
| L | 8260D | Dibromochloromethane | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Lab SDG** | 22F1625 | | 22F1625 | | 22F1625 | |
| | | | **Location** | MW-03 | | MW-03 | | QC | |
| | | | **Field Sample Date** | 6/24/2022 | | 6/24/2022 | | 6/24/2022 | |
| | | | **Field Sample ID** | 360175-MW0030020 | | 360175-MW0030020 Dup | | 360175-TB624 | |
| | | | **Qc Code** | FS | | FD | | TB | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Dibromomethane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Dichlorodifluoromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Diethyl ether | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Ethyl-t-Butyl Ether | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Ethylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Hexachlorobutadiene | UG/L | 0.6 | U | 0.6 | U | 0.6 | U |
| L | 8260D | Isopropyl ether | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | Isopropylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methyl cyclohexane | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methyl Tertbutyl Ether | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Methylene chloride | UG/L | 5 | U | 5 | U | 0.29 | J |
| L | 8260D | n-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Naphthalene | UG/L | 2 | UJ | 2 | UJ | 2 | U |
| L | 8260D | Propylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | sec-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Styrene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | t-Butyl alcohol | UG/L | 20 | UJ | 20 | UJ | 20 | U |
| L | 8260D | tert-Butylbenzene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Tetrachloroethene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Tetrahydrofuran | UG/L | 10 | U | 10 | U | 10 | U |
| L | 8260D | Toluene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | trans-1,2-Dichloroethene | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | trans-1,3-Dichloropropene | UG/L | 0.5 | U | 0.5 | U | 0.5 | U |
| L | 8260D | trans-1,4-Dichloro-2-butene | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Trichloroethene | UG/L | 1 | U | 1 | U | 1 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22F1625 | | 22F1625 | | 22F1625 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | MW-03 | | MW-03 | | QC | |
| | | | **Field Sample Date** | 6/24/2022 | | 6/24/2022 | | 6/24/2022 | |
| | | | **Field Sample ID** | 360175-MW0030020 | | 360175-MW0030020 Dup | | 360175-TB624 | |
| | | | **Qc Code** | FS | | FD | | TB | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8260D | Trichlorofluoromethane | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Vinyl chloride | UG/L | 2 | U | 2 | U | 2 | U |
| L | 8260D | Xylene, o | UG/L | 1 | U | 1 | U | 1 | U |
| L | 8260D | Xylenes (m&p) | UG/L | 2 | U | 2 | U | 2 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22A0721 | | 22A0721 | | 22A0721 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | HA-01 | | HA-01 | | HA-02 | |
| | | | Field Sample Date | 1/12/2022 | | 1/12/2022 | | 1/12/2022 | |
| | | | Field Sample ID | 360175-HA001001 | | 360175-HA001001D | | 360175-HA002001 | |
| | | | Qc Code | FS | | FD | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| S | 8260D | 1,1,1-Trichloroethane | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | 1,1,2,2-Tetrachloroethane | MG/KG | 0.00051 | U | 0.00043 | U | 0.00065 | U |
| S | 8260D | 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | MG/KG | 0.0051 | U | 0.0043 | U | 0.0065 | U |
| S | 8260D | 1,1,2-Trichloroethane | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | 1,1-Dichloroethane | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | 1,1-Dichloroethene | MG/KG | 0.0021 | U | 0.0017 | U | 0.0026 | U |
| S | 8260D | 1,2,3-Trichlorobenzene | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | 1,2,4-Trichlorobenzene | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | 1,2,4-Trimethylbenzene | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | 1,2-Dibromo-3-chloropropane | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | 1,2-Dibromoethane | MG/KG | 0.00051 | U | 0.00043 | U | 0.00065 | U |
| S | 8260D | 1,2-Dichlorobenzene | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | 1,2-Dichloroethane | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | 1,2-Dichloropropane | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | 1,3,5-Trimethylbenzene | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | 1,3-Dichlorobenzene | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | 1,4-Dichlorobenzene | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | 1,4-Dioxane | MG/KG | 0.051 | UJ | 0.043 | UJ | 0.065 | U |
| S | 8260D | 2-Butanone | MG/KG | 0.021 | UJ | 0.017 | UJ | 0.026 | UJ |
| S | 8260D | 2-Hexanone | MG/KG | 0.01 | U | 0.0085 | U | 0.013 | U |
| S | 8260D | 4-iso-Propyltoluene | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | 4-Methyl-2-pentanone | MG/KG | 0.01 | U | 0.0085 | U | 0.013 | U |
| S | 8260D | Acetic acid, methyl ester | MG/KG | 0.001 | UJ | 0.00085 | UJ | 0.0013 | UJ |
| S | 8260D | Acetone | MG/KG | 0.051 | U | 0.043 | U | 0.065 | U |
| S | 8260D | Benzene | MG/KG | 0.001 | UJ | 0.00085 | UJ | 0.0013 | UJ |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22A0721 | | 22A0721 | | 22A0721 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | HA-01 | | HA-01 | | HA-02 | |
| | | | Field Sample Date | 1/12/2022 | | 1/12/2022 | | 1/12/2022 | |
| | | | Field Sample ID | 360175-HA001001 | | 360175-HA001001D | | 360175-HA002001 | |
| | | | Qc Code | FS | | FD | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| S | 8260D | Bromochloromethane | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | Bromodichloromethane | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | Bromoform | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | Bromomethane | MG/KG | 0.0051 | UJ | 0.0043 | UJ | 0.0065 | UJ |
| S | 8260D | Carbon disulfide | MG/KG | 0.0051 | U | 0.0043 | U | 0.0065 | U |
| S | 8260D | Carbon tetrachloride | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | Chlorobenzene | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | Chloroethane | MG/KG | 0.01 | U | 0.0085 | U | 0.013 | U |
| S | 8260D | Chloroform | MG/KG | 0.0021 | U | 0.0017 | U | 0.0026 | U |
| S | 8260D | Chloromethane | MG/KG | 0.0051 | UJ | 0.0043 | UJ | 0.0065 | U |
| S | 8260D | cis-1,2-Dichloroethene | MG/KG | 0.00053 | J | 0.0004 | J | 0.00084 | J |
| S | 8260D | cis-1,3-Dichloropropene | MG/KG | 0.00051 | U | 0.00043 | U | 0.00065 | U |
| S | 8260D | Cyclohexane | MG/KG | | | | | | |
| S | 8260D | Dibromochloromethane | MG/KG | 0.00051 | U | 0.00043 | U | 0.00065 | U |
| S | 8260D | Dichlorodifluoromethane | MG/KG | 0.01 | U | 0.0085 | U | 0.013 | U |
| S | 8260D | Ethylbenzene | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | Isopropylbenzene | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | Methyl cyclohexane | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | Methyl Tertbutyl Ether | MG/KG | 0.0021 | U | 0.0017 | U | 0.0026 | U |
| S | 8260D | Methylene chloride | MG/KG | 0.01 | U | 0.0085 | U | 0.013 | U |
| S | 8260D | n-Butylbenzene | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | Naphthalene | MG/KG | 0.0021 | U | 0.0017 | U | 0.0026 | U |
| S | 8260D | Propylbenzene | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | sec-Butylbenzene | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | Styrene | MG/KG | 0.001 | U | 0.00085 | U | 0.0013 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | Lab SDG | 22A0721 | | 22A0721 | | 22A0721 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Location | HA-01 | | HA-01 | | HA-02 | |
| | | | | Field Sample Date | 1/12/2022 | | 1/12/2022 | | 1/12/2022 | |
| | | | | Field Sample ID | 360175-HA001001 | | 360175-HA001001D | | 360175-HA002001 | |
| | | | | Qc Code | FS | | FD | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| S | 8260D | tert-Butylbenzene | MG/KG | | 0.0021 | U | 0.0017 | U | 0.0026 | U |
| S | 8260D | Tetrachloroethene | MG/KG | | 3.4 | J | 4.7 | J | 0.14 | |
| S | 8260D | Toluene | MG/KG | | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | trans-1,2-Dichloroethene | MG/KG | | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | trans-1,3-Dichloropropene | MG/KG | | 0.00051 | U | 0.00043 | U | 0.00065 | U |
| S | 8260D | Trichloroethene | MG/KG | | 0.0013 | | 0.0011 | | 0.0026 | |
| S | 8260D | Trichlorofluoromethane | MG/KG | | 0.0051 | U | 0.0043 | U | 0.0065 | U |
| S | 8260D | Vinyl chloride | MG/KG | | 0.0051 | U | 0.0043 | U | 0.0065 | U |
| S | 8260D | Xylene, o | MG/KG | | 0.001 | U | 0.00085 | U | 0.0013 | U |
| S | 8260D | Xylenes (m&p) | MG/KG | | 0.0021 | U | 0.0017 | U | 0.0026 | U |
| S | SM2540G | Percent Solids | % BY WT. | | 83.9 | | 83.9 | | 84.1 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22A0721 | | 22A0721 | |
|---|---|---|---|---|---|---|---|
| | | | Location | HA-03 | | Drum-S | |
| | | | Field Sample Date | 1/12/2022 | | 1/12/2022 | |
| | | | Field Sample ID | 360175-HA003001 | | WC Drum | |
| | | | Qc Code | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier |
| S | 8260D | 1,1,1-Trichloroethane | MG/KG | 0.065 | U | 0.0022 | U |
| S | 8260D | 1,1,2,2-Tetrachloroethane | MG/KG | 0.033 | U | 0.0011 | U |
| S | 8260D | 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | MG/KG | 0.065 | U | 0.011 | U |
| S | 8260D | 1,1,2-Trichloroethane | MG/KG | 0.065 | U | 0.0022 | U |
| S | 8260D | 1,1-Dichloroethane | MG/KG | 0.065 | U | 0.0022 | U |
| S | 8260D | 1,1-Dichloroethene | MG/KG | 0.065 | U | 0.0044 | U |
| S | 8260D | 1,2,3-Trichlorobenzene | MG/KG | 0.33 | U | 0.0022 | U |
| S | 8260D | 1,2,4-Trichlorobenzene | MG/KG | 0.065 | U | 0.0022 | U |
| S | 8260D | 1,2,4-Trimethylbenzene | MG/KG | 0.07 | U | 0.0022 | U |
| S | 8260D | 1,2-Dibromo-3-chloropropane | MG/KG | 0.33 | U | 0.0022 | U |
| S | 8260D | 1,2-Dibromoethane | MG/KG | 0.033 | U | 0.0011 | U |
| S | 8260D | 1,2-Dichlorobenzene | MG/KG | 0.065 | U | 0.0022 | U |
| S | 8260D | 1,2-Dichloroethane | MG/KG | 0.065 | U | 0.0022 | U |
| S | 8260D | 1,2-Dichloropropane | MG/KG | 0.065 | U | 0.0022 | U |
| S | 8260D | 1,3,5-Trimethylbenzene | MG/KG | 0.07 | U | 0.0022 | U |
| S | 8260D | 1,3-Dichlorobenzene | MG/KG | 0.065 | U | 0.0022 | U |
| S | 8260D | 1,4-Dichlorobenzene | MG/KG | 0.065 | U | 0.0022 | U |
| S | 8260D | 1,4-Dioxane | MG/KG | 3.3 | U | 0.11 | U |
| S | 8260D | 2-Butanone | MG/KG | 1.3 | U | 0.044 | U |
| S | 8260D | 2-Hexanone | MG/KG | 0.65 | U | 0.022 | U |
| S | 8260D | 4-iso-Propyltoluene | MG/KG | 0.07 | U | 0.0022 | U |
| S | 8260D | 4-Methyl-2-pentanone | MG/KG | 0.65 | U | 0.022 | U |
| S | 8260D | Acetic acid, methyl ester | MG/KG | 0.65 | U | 0.0022 | U |
| S | 8260D | Acetone | MG/KG | 3.3 | U | 0.013 | J |
| S | 8260D | Benzene | MG/KG | 0.07 | U | 0.00071 | J |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22A0721 | | 22A0721 | |
|---|---|---|---|---|---|---|---|
| | | | Location | HA-03 | | Drum-S | |
| | | | Field Sample Date | 1/12/2022 | | 1/12/2022 | |
| | | | Field Sample ID | 360175-HA003001 | | WC Drum | |
| | | | Qc Code | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier |
| S | 8260D | Bromochloromethane | MG/KG | 0.065 | U | 0.0022 | U |
| S | 8260D | Bromodichloromethane | MG/KG | 0.065 | U | 0.0022 | U |
| S | 8260D | Bromoform | MG/KG | 0.065 | U | 0.0022 | U |
| S | 8260D | Bromomethane | MG/KG | 0.13 | UJ | 0.011 | U |
| S | 8260D | Carbon disulfide | MG/KG | 0.33 | U | 0.011 | U |
| S | 8260D | Carbon tetrachloride | MG/KG | 0.065 | U | 0.0022 | U |
| S | 8260D | Chlorobenzene | MG/KG | 0.065 | U | 0.0022 | U |
| S | 8260D | Chloroethane | MG/KG | 0.13 | U | 0.022 | U |
| S | 8260D | Chloroform | MG/KG | 0.13 | U | 0.0044 | U |
| S | 8260D | Chloromethane | MG/KG | 0.13 | UJ | 0.011 | U |
| S | 8260D | cis-1,2-Dichloroethene | MG/KG | 0.71 | | 0.0062 | |
| S | 8260D | cis-1,3-Dichloropropene | MG/KG | 0.033 | U | 0.0011 | U |
| S | 8260D | Cyclohexane | MG/KG | 0.13 | U | | |
| S | 8260D | Dibromochloromethane | MG/KG | 0.033 | U | 0.0011 | U |
| S | 8260D | Dichlorodifluoromethane | MG/KG | 0.13 | U | 0.022 | U |
| S | 8260D | Ethylbenzene | MG/KG | 0.07 | U | 0.0022 | U |
| S | 8260D | Isopropylbenzene | MG/KG | 0.07 | U | 0.0022 | U |
| S | 8260D | Methyl cyclohexane | MG/KG | 0.065 | U | 0.0022 | U |
| S | 8260D | Methyl Tertbutyl Ether | MG/KG | 0.07 | U | 0.0044 | U |
| S | 8260D | Methylene chloride | MG/KG | 0.33 | U | 0.022 | U |
| S | 8260D | n-Butylbenzene | MG/KG | 0.07 | U | 0.0022 | U |
| S | 8260D | Naphthalene | MG/KG | 0.14 | U | 0.00082 | J |
| S | 8260D | Propylbenzene | MG/KG | 0.07 | U | 0.0022 | U |
| S | 8260D | sec-Butylbenzene | MG/KG | 0.07 | U | 0.0022 | U |
| S | 8260D | Styrene | MG/KG | 0.065 | U | 0.0022 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | Lab SDG | 22A0721 | | 22A0721 | |
|---|---|---|---|---|---|---|---|---|
| | | | | Location | HA-03 | | Drum-S | |
| | | | | Field Sample Date | 1/12/2022 | | 1/12/2022 | |
| | | | | Field Sample ID | 360175-HA003001 | | WC Drum | |
| | | | | Qc Code | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | | Result | Qualifier | Result | Qualifier |
| S | 8260D | tert-Butylbenzene | MG/KG | | 0.07 | U | 0.0044 | U |
| S | 8260D | Tetrachloroethene | MG/KG | | 5.6 | | 0.19 | |
| S | 8260D | Toluene | MG/KG | | 0.07 | U | 0.0022 | U |
| S | 8260D | trans-1,2-Dichloroethene | MG/KG | | 0.015 | J | 0.0022 | U |
| S | 8260D | trans-1,3-Dichloropropene | MG/KG | | 0.033 | U | 0.0011 | U |
| S | 8260D | Trichloroethene | MG/KG | | 0.16 | | 0.0054 | |
| S | 8260D | Trichlorofluoromethane | MG/KG | | 0.13 | U | 0.011 | U |
| S | 8260D | Vinyl chloride | MG/KG | | 0.13 | U | 0.011 | U |
| S | 8260D | Xylene, o | MG/KG | | 0.07 | U | 0.0022 | U |
| S | 8260D | Xylenes (m&p) | MG/KG | | 0.14 | U | 0.0044 | U |
| S | SM2540G | Percent Solids | % BY WT. | | 76.6 | | | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1819 | | 22C1819 | | 22C1819 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | GV-008 | | GV-009 | | GV-009 | |
| | | | Field Sample Date | 3/23/2022 | | 3/23/2022 | | 3/23/2022 | |
| | | | Field Sample ID | 360175-GV008005 | | 360175-GV009005 | | 360175-GV009005D | |
| | | | Qc Code | FS | | FS | | FD | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| G | TO15 | 1,1,1-Trichloroethane | UG/M3 | 1.1 | U | 1.1 | U | 1.1 | U |
| G | TO15 | 1,1,2,2-Tetrachloroethane | UG/M3 | 1.4 | U | 1.4 | U | 1.4 | U |
| G | TO15 | 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | UG/M3 | 6.1 | U | 6.1 | U | 6.1 | U |
| G | TO15 | 1,1,2-Trichloroethane | UG/M3 | 1.1 | U | 1.1 | U | 1.1 | U |
| G | TO15 | 1,1-Dichloroethane | UG/M3 | 0.81 | U | 0.81 | U | 0.81 | U |
| G | TO15 | 1,1-Dichloroethene | UG/M3 | 0.79 | U | 0.79 | U | 0.79 | U |
| G | TO15 | 1,2,4-Trichlorobenzene | UG/M3 | 1.5 | UJ | 1.5 | UJ | 1.5 | UJ |
| G | TO15 | 1,2,4-Trimethylbenzene | UG/M3 | 0.98 | U | 0.98 | U | 0.98 | U |
| G | TO15 | 1,2-Dibromoethane | UG/M3 | 1.5 | U | 1.5 | U | 1.5 | U |
| G | TO15 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane | UG/M3 | 1.4 | U | 1.4 | U | 1.4 | U |
| G | TO15 | 1,2-Dichlorobenzene | UG/M3 | 1.2 | U | 1.2 | U | 1.2 | U |
| G | TO15 | 1,2-Dichloroethane | UG/M3 | 0.81 | U | 0.81 | U | 0.81 | U |
| G | TO15 | 1,2-Dichloropropane | UG/M3 | 0.92 | U | 0.92 | U | 0.92 | U |
| G | TO15 | 1,3,5-Trimethylbenzene | UG/M3 | 0.98 | U | 0.98 | U | 0.98 | U |
| G | TO15 | 1,3-Butadiene | UG/M3 | 0.44 | U | 0.44 | U | 0.44 | U |
| G | TO15 | 1,3-Dichlorobenzene | UG/M3 | 3 | | 1.8 | | 2.3 | |
| G | TO15 | 1,4-Dichlorobenzene | UG/M3 | 1.2 | U | 1.2 | U | 1.2 | U |
| G | TO15 | 1,4-Dioxane | UG/M3 | 7.2 | U | 7.2 | U | 7.2 | U |
| G | TO15 | 2-Butanone | UG/M3 | 24 | U | 24 | U | 24 | U |
| G | TO15 | 2-Hexanone | UG/M3 | 0.82 | U | 0.82 | U | 0.82 | U |
| G | TO15 | 2-Propanol | UG/M3 | 5.4 | J | 4.8 | J | 5.1 | J |
| G | TO15 | 4-Ethyltoluene | UG/M3 | 0.98 | U | 0.98 | U | 0.98 | U |
| G | TO15 | 4-Methyl-2-pentanone | UG/M3 | 0.82 | U | 0.82 | U | 0.82 | U |
| G | TO15 | Acetone | UG/M3 | 57 | | 32 | | 31 | |
| G | TO15 | Benzene | UG/M3 | 0.64 | U | 0.64 | U | 0.64 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1819 | | 22C1819 | | 22C1819 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | GV-008 | | GV-009 | | GV-009 | |
| | | | Field Sample Date | 3/23/2022 | | 3/23/2022 | | 3/23/2022 | |
| | | | Field Sample ID | 360175-GV008005 | | 360175-GV009005 | | 360175-GV009005D | |
| | | | Qc Code | FS | | FS | | FD | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| G | TO15 | Benzyl chloride | UG/M3 | 1 | U | 1 | U | 1 | U |
| G | TO15 | Bromodichloromethane | UG/M3 | 1.3 | U | 1.3 | U | 1.3 | U |
| G | TO15 | Bromoform | UG/M3 | 2.1 | U | 2.1 | U | 2.1 | U |
| G | TO15 | Bromomethane | UG/M3 | 0.78 | U | 0.78 | U | 0.78 | U |
| G | TO15 | Carbon disulfide | UG/M3 | 6.2 | U | 6.2 | U | 6.2 | U |
| G | TO15 | Carbon tetrachloride | UG/M3 | 1.3 | U | 1.3 | U | 1.3 | U |
| G | TO15 | Chlorobenzene | UG/M3 | 0.92 | U | 0.92 | U | 0.92 | U |
| G | TO15 | Chloroethane | UG/M3 | 0.53 | U | 0.53 | U | 0.53 | U |
| G | TO15 | Chloroform | UG/M3 | 2.4 | | 0.98 | U | 0.98 | U |
| G | TO15 | Chloromethane | UG/M3 | 0.83 | U | 0.33 | J | 0.83 | U |
| G | TO15 | cis-1,2-Dichloroethene | UG/M3 | 86 | | 0.79 | U | 0.79 | U |
| G | TO15 | cis-1,3-Dichloropropene | UG/M3 | 0.91 | U | 0.91 | U | 0.91 | U |
| G | TO15 | Cyclohexane | UG/M3 | 0.69 | U | 0.69 | U | 0.69 | U |
| G | TO15 | Dibromochloromethane | UG/M3 | 1.7 | U | 1.7 | U | 1.7 | U |
| G | TO15 | Dichlorodifluoromethane | UG/M3 | 1.9 | | 2.3 | | 2.1 | |
| G | TO15 | Ethanol | UG/M3 | 98 | | 100 | | 100 | |
| G | TO15 | Ethyl acetate | UG/M3 | 7.2 | U | 7.2 | U | 7.2 | U |
| G | TO15 | Ethylbenzene | UG/M3 | 0.64 | J | 0.87 | U | 0.87 | U |
| G | TO15 | Heptane | UG/M3 | 1.6 | | 0.82 | U | 0.82 | U |
| G | TO15 | Hexachlorobutadiene | UG/M3 | 2.1 | U | 2.1 | U | 2.1 | U |
| G | TO15 | Hexane | UG/M3 | 28 | U | 28 | U | 28 | U |
| G | TO15 | Methyl Tertbutyl Ether | UG/M3 | 0.72 | U | 0.72 | U | 0.72 | U |
| G | TO15 | Methylene chloride | UG/M3 | 6.9 | U | 6.9 | U | 6.9 | U |
| G | TO15 | Naphthalene | UG/M3 | 1 | U | 1 | U | 1 | U |
| G | TO15 | Propylene | UG/M3 | 14 | U | 14 | U | 14 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | Lab SDG | 22C1819 | | 22C1819 | | 22C1819 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Location | GV-008 | | GV-009 | | GV-009 | |
| | | | | Field Sample Date | 3/23/2022 | | 3/23/2022 | | 3/23/2022 | |
| | | | | Field Sample ID | 360175-GV008005 | | 360175-GV009005 | | 360175-GV009005D | |
| | | | | Qc Code | FS | | FS | | FD | |
| **Matrix** | **Method** | **Parameter** | **Units** | | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| G | TO15 | Styrene | UG/M3 | | 0.85 | U | 0.85 | U | 0.85 | U |
| G | TO15 | Tetrachloroethene | UG/M3 | | 1,100 | | 4.6 | | 5 | |
| G | TO15 | Tetrahydrofuran | UG/M3 | | 5.9 | U | 5.9 | U | 5.9 | U |
| G | TO15 | Toluene | UG/M3 | | 4.5 | | 1.9 | | 1.9 | |
| G | TO15 | trans-1,2-Dichloroethene | UG/M3 | | 8.7 | | 0.79 | U | 0.79 | U |
| G | TO15 | trans-1,3-Dichloropropene | UG/M3 | | 0.91 | U | 0.91 | U | 0.91 | U |
| G | TO15 | Trichloroethene | UG/M3 | | 110 | | 1.1 | U | 1.1 | U |
| G | TO15 | Trichlorofluoromethane | UG/M3 | | 1.3 | J | 1.4 | J | 1.4 | J |
| G | TO15 | Vinyl acetate | UG/M3 | | 14 | U | 14 | U | 14 | U |
| G | TO15 | Vinyl chloride | UG/M3 | | 0.85 | | 0.51 | U | 0.51 | U |
| G | TO15 | Xylene, o | UG/M3 | | 0.8 | J | 0.49 | J | 0.45 | J |
| G | TO15 | Xylenes (m&p) | UG/M3 | | 2 | | 1.3 | J | 1.4 | J |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1819 | | 22C1819 | | 22C1819 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | GV-010 | | GV-011 | | GV-012 | |
| | | | Field Sample Date | 3/24/2022 | | 3/24/2022 | | 3/24/2022 | |
| | | | Field Sample ID | 360175-GV010005 | | 360175-GV011005 | | 360175-GV012005 | |
| | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| G | TO15 | 1,1,1-Trichloroethane | UG/M3 | 1.1 | U | 1.1 | U | 1.1 | U |
| G | TO15 | 1,1,2,2-Tetrachloroethane | UG/M3 | 1.4 | U | 1.4 | U | 1.4 | U |
| G | TO15 | 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | UG/M3 | 6.1 | U | 6.1 | U | 6.1 | U |
| G | TO15 | 1,1,2-Trichloroethane | UG/M3 | 1.1 | U | 1.1 | U | 1.1 | U |
| G | TO15 | 1,1-Dichloroethane | UG/M3 | 0.81 | U | 0.81 | U | 0.81 | U |
| G | TO15 | 1,1-Dichloroethene | UG/M3 | 0.79 | U | 0.79 | U | 0.79 | U |
| G | TO15 | 1,2,4-Trichlorobenzene | UG/M3 | 1.5 | U | 1.5 | U | 1.5 | U |
| G | TO15 | 1,2,4-Trimethylbenzene | UG/M3 | 0.98 | U | 0.98 | U | 0.98 | U |
| G | TO15 | 1,2-Dibromoethane | UG/M3 | 1.5 | U | 1.5 | U | 1.5 | U |
| G | TO15 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane | UG/M3 | 1.4 | U | 1.4 | U | 1.4 | U |
| G | TO15 | 1,2-Dichlorobenzene | UG/M3 | 1.2 | U | 1.2 | U | 1.2 | U |
| G | TO15 | 1,2-Dichloroethane | UG/M3 | 0.81 | U | 0.81 | U | 0.81 | U |
| G | TO15 | 1,2-Dichloropropane | UG/M3 | 0.92 | U | 0.92 | U | 0.92 | U |
| G | TO15 | 1,3,5-Trimethylbenzene | UG/M3 | 0.98 | U | 0.98 | U | 0.98 | U |
| G | TO15 | 1,3-Butadiene | UG/M3 | 0.44 | U | 0.44 | U | 0.44 | U |
| G | TO15 | 1,3-Dichlorobenzene | UG/M3 | 1.2 | U | 1.2 | U | 1.2 | U |
| G | TO15 | 1,4-Dichlorobenzene | UG/M3 | 1.2 | U | 1.2 | U | 1.2 | U |
| G | TO15 | 1,4-Dioxane | UG/M3 | 7.2 | U | 7.2 | U | 7.2 | U |
| G | TO15 | 2-Butanone | UG/M3 | 24 | U | 24 | U | 24 | U |
| G | TO15 | 2-Hexanone | UG/M3 | 0.82 | U | 0.82 | U | 0.82 | U |
| G | TO15 | 2-Propanol | UG/M3 | 3.7 | J | 4.4 | J | 5.1 | J |
| G | TO15 | 4-Ethyltoluene | UG/M3 | 0.98 | U | 0.98 | U | 0.98 | U |
| G | TO15 | 4-Methyl-2-pentanone | UG/M3 | 0.82 | U | 0.82 | U | 0.82 | U |
| G | TO15 | Acetone | UG/M3 | 73 | | 210 | | 150 | |
| G | TO15 | Benzene | UG/M3 | 0.64 | U | 0.64 | U | 0.64 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1819 | | 22C1819 | | 22C1819 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | GV-010 | | GV-011 | | GV-012 | |
| | | | Field Sample Date | 3/24/2022 | | 3/24/2022 | | 3/24/2022 | |
| | | | Field Sample ID | 360175-GV010005 | | 360175-GV011005 | | 360175-GV012005 | |
| | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| G | TO15 | Benzyl chloride | UG/M3 | 1 | U | 1 | U | 1 | U |
| G | TO15 | Bromodichloromethane | UG/M3 | 1.3 | U | 1.3 | U | 1.3 | U |
| G | TO15 | Bromoform | UG/M3 | 2.1 | U | 2.1 | U | 2.1 | U |
| G | TO15 | Bromomethane | UG/M3 | 0.78 | U | 0.78 | U | 0.78 | U |
| G | TO15 | Carbon disulfide | UG/M3 | 6.2 | U | 6.2 | U | 6.2 | U |
| G | TO15 | Carbon tetrachloride | UG/M3 | 1.3 | U | 1.3 | U | 1.3 | U |
| G | TO15 | Chlorobenzene | UG/M3 | 0.92 | U | 0.92 | U | 0.92 | U |
| G | TO15 | Chloroethane | UG/M3 | 0.53 | U | 0.53 | U | 0.53 | U |
| G | TO15 | Chloroform | UG/M3 | 0.98 | U | 1.2 | | 1.2 | |
| G | TO15 | Chloromethane | UG/M3 | 0.83 | U | 0.83 | U | 0.83 | U |
| G | TO15 | cis-1,2-Dichloroethene | UG/M3 | 0.79 | U | 0.79 | U | 0.79 | U |
| G | TO15 | cis-1,3-Dichloropropene | UG/M3 | 0.91 | U | 0.91 | U | 0.91 | U |
| G | TO15 | Cyclohexane | UG/M3 | 0.69 | U | 0.69 | U | 0.69 | U |
| G | TO15 | Dibromochloromethane | UG/M3 | 1.7 | U | 1.7 | U | 1.7 | U |
| G | TO15 | Dichlorodifluoromethane | UG/M3 | 2.1 | | 1.9 | | 2 | |
| G | TO15 | Ethanol | UG/M3 | 160 | | 67 | | 180 | |
| G | TO15 | Ethyl acetate | UG/M3 | 7.2 | U | 7.2 | U | 7.2 | U |
| G | TO15 | Ethylbenzene | UG/M3 | 0.87 | U | 0.87 | U | 0.87 | U |
| G | TO15 | Heptane | UG/M3 | 0.66 | J | 0.75 | J | 0.84 | |
| G | TO15 | Hexachlorobutadiene | UG/M3 | 2.1 | U | 2.1 | U | 2.1 | U |
| G | TO15 | Hexane | UG/M3 | 28 | U | 28 | U | 28 | U |
| G | TO15 | Methyl Tertbutyl Ether | UG/M3 | 0.72 | U | 0.72 | U | 0.72 | U |
| G | TO15 | Methylene chloride | UG/M3 | 6.9 | U | 6.9 | U | 6.9 | U |
| G | TO15 | Naphthalene | UG/M3 | 1 | U | 1 | U | 1 | U |
| G | TO15 | Propylene | UG/M3 | 14 | U | 14 | U | 14 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | Lab SDG | 22C1819 | | 22C1819 | | 22C1819 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Location | GV-010 | | GV-011 | | GV-012 | |
| | | | | Field Sample Date | 3/24/2022 | | 3/24/2022 | | 3/24/2022 | |
| | | | | Field Sample ID | 360175-GV010005 | | 360175-GV011005 | | 360175-GV012005 | |
| | | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| G | TO15 | Styrene | UG/M3 | | 0.85 | U | 0.85 | U | 0.85 | U |
| G | TO15 | Tetrachloroethene | UG/M3 | | 7.9 | | 4.1 | | 7.1 | |
| G | TO15 | Tetrahydrofuran | UG/M3 | | 5.9 | U | 5.9 | U | 5.9 | U |
| G | TO15 | Toluene | UG/M3 | | 1.7 | | 2.1 | | 1.7 | |
| G | TO15 | trans-1,2-Dichloroethene | UG/M3 | | 0.79 | U | 0.79 | U | 0.79 | U |
| G | TO15 | trans-1,3-Dichloropropene | UG/M3 | | 0.91 | U | 0.91 | U | 0.91 | U |
| G | TO15 | Trichloroethene | UG/M3 | | 1.1 | U | 1.1 | U | 1.1 | U |
| G | TO15 | Trichlorofluoromethane | UG/M3 | | 4.5 | U | 4.5 | U | 4.5 | U |
| G | TO15 | Vinyl acetate | UG/M3 | | 14 | U | 14 | U | 14 | U |
| G | TO15 | Vinyl chloride | UG/M3 | | 0.51 | U | 0.51 | U | 0.51 | U |
| G | TO15 | Xylene, o | UG/M3 | | 0.87 | U | 0.87 | U | 0.87 | U |
| G | TO15 | Xylenes (m&p) | UG/M3 | | 1.7 | U | 1.7 | U | 1.7 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1819 | | 22C1819 | | 22C1819 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | GV-014 | | GV-015 | | GV-016 | |
| | | | Field Sample Date | 3/25/2022 | | 3/24/2022 | | 3/23/2022 | |
| | | | Field Sample ID | 360175-GV014005 | | 360175-GV015005 | | 360175-GV016005 | |
| | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| G | TO15 | 1,1,1-Trichloroethane | UG/M3 | 1.1 | U | 1.1 | U | 1.1 | U |
| G | TO15 | 1,1,2,2-Tetrachloroethane | UG/M3 | 1.4 | U | 1.4 | U | 1.4 | U |
| G | TO15 | 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | UG/M3 | 6.1 | U | 6.1 | U | 6.1 | U |
| G | TO15 | 1,1,2-Trichloroethane | UG/M3 | 1.1 | U | 1.1 | U | 1.1 | U |
| G | TO15 | 1,1-Dichloroethane | UG/M3 | 0.81 | U | 0.81 | U | 0.81 | U |
| G | TO15 | 1,1-Dichloroethene | UG/M3 | 0.79 | U | 0.79 | U | 0.79 | U |
| G | TO15 | 1,2,4-Trichlorobenzene | UG/M3 | 1.5 | U | 1.5 | U | 1.5 | UJ |
| G | TO15 | 1,2,4-Trimethylbenzene | UG/M3 | 0.98 | U | 0.98 | U | 0.98 | U |
| G | TO15 | 1,2-Dibromoethane | UG/M3 | 1.5 | U | 1.5 | U | 1.5 | U |
| G | TO15 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane | UG/M3 | 1.4 | U | 1.4 | U | 1.4 | U |
| G | TO15 | 1,2-Dichlorobenzene | UG/M3 | 1.2 | U | 1.2 | U | 1.2 | U |
| G | TO15 | 1,2-Dichloroethane | UG/M3 | 0.81 | U | 0.81 | U | 0.81 | U |
| G | TO15 | 1,2-Dichloropropane | UG/M3 | 0.92 | U | 0.92 | U | 0.92 | U |
| G | TO15 | 1,3,5-Trimethylbenzene | UG/M3 | 0.98 | U | 0.98 | U | 0.98 | U |
| G | TO15 | 1,3-Butadiene | UG/M3 | 0.44 | U | 0.44 | U | 0.44 | U |
| G | TO15 | 1,3-Dichlorobenzene | UG/M3 | 1.2 | U | 0.84 | J | 1.2 | U |
| G | TO15 | 1,4-Dichlorobenzene | UG/M3 | 1.2 | U | 1.2 | U | 1.2 | U |
| G | TO15 | 1,4-Dioxane | UG/M3 | 7.2 | U | 7.2 | U | 7.2 | U |
| G | TO15 | 2-Butanone | UG/M3 | 24 | U | 24 | U | 24 | U |
| G | TO15 | 2-Hexanone | UG/M3 | 0.82 | U | 0.82 | U | 0.82 | U |
| G | TO15 | 2-Propanol | UG/M3 | 34 | | 23 | | 210 | |
| G | TO15 | 4-Ethyltoluene | UG/M3 | 0.98 | U | 0.98 | U | 0.98 | U |
| G | TO15 | 4-Methyl-2-pentanone | UG/M3 | 0.82 | U | 0.82 | U | 0.82 | U |
| G | TO15 | Acetone | UG/M3 | 160 | | 80 | | 120 | |
| G | TO15 | Benzene | UG/M3 | 0.74 | | 0.51 | J | 1.3 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1819 | | 22C1819 | | 22C1819 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | GV-014 | | GV-015 | | GV-016 | |
| | | | Field Sample Date | 3/25/2022 | | 3/24/2022 | | 3/23/2022 | |
| | | | Field Sample ID | 360175-GV014005 | | 360175-GV015005 | | 360175-GV016005 | |
| | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| G | TO15 | Benzyl chloride | UG/M3 | 1 | U | 1 | U | 1 | U |
| G | TO15 | Bromodichloromethane | UG/M3 | 1.3 | U | 1.3 | U | 1.3 | U |
| G | TO15 | Bromoform | UG/M3 | 2.1 | U | 2.1 | U | 2.1 | U |
| G | TO15 | Bromomethane | UG/M3 | 0.78 | U | 0.78 | U | 0.78 | U |
| G | TO15 | Carbon disulfide | UG/M3 | 6.2 | U | 6.2 | U | 6.2 | U |
| G | TO15 | Carbon tetrachloride | UG/M3 | 1.3 | U | 1.3 | U | 1.3 | U |
| G | TO15 | Chlorobenzene | UG/M3 | 0.92 | U | 0.92 | U | 0.92 | U |
| G | TO15 | Chloroethane | UG/M3 | 0.53 | U | 0.53 | U | 0.53 | U |
| G | TO15 | Chloroform | UG/M3 | 0.98 | U | 0.98 | U | 0.98 | U |
| G | TO15 | Chloromethane | UG/M3 | 0.83 | U | 0.83 | U | 1.5 | |
| G | TO15 | cis-1,2-Dichloroethene | UG/M3 | 0.79 | U | 0.79 | U | 0.79 | U |
| G | TO15 | cis-1,3-Dichloropropene | UG/M3 | 0.91 | U | 0.91 | U | 0.91 | U |
| G | TO15 | Cyclohexane | UG/M3 | 0.69 | U | 0.69 | U | 7.5 | |
| G | TO15 | Dibromochloromethane | UG/M3 | 1.7 | U | 1.7 | U | 1.7 | U |
| G | TO15 | Dichlorodifluoromethane | UG/M3 | 2 | | 2 | | 1.2 | |
| G | TO15 | Ethanol | UG/M3 | 100 | | 100 | | 790 | |
| G | TO15 | Ethyl acetate | UG/M3 | 7.2 | U | 7.2 | U | 7.2 | U |
| G | TO15 | Ethylbenzene | UG/M3 | 0.87 | U | 0.76 | J | 0.87 | U |
| G | TO15 | Heptane | UG/M3 | 0.66 | J | 1.6 | | 2.9 | |
| G | TO15 | Hexachlorobutadiene | UG/M3 | 2.1 | U | 2.1 | U | 2.1 | U |
| G | TO15 | Hexane | UG/M3 | 28 | U | 7.6 | J | 310 | |
| G | TO15 | Methyl Tertbutyl Ether | UG/M3 | 0.72 | U | 0.72 | U | 0.72 | U |
| G | TO15 | Methylene chloride | UG/M3 | 6.9 | U | 6.9 | U | 6.9 | U |
| G | TO15 | Naphthalene | UG/M3 | 1 | U | 1 | U | 1 | U |
| G | TO15 | Propylene | UG/M3 | 14 | U | 14 | U | 14 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | Lab SDG | 22C1819 | | 22C1819 | | 22C1819 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Location | GV-014 | | GV-015 | | GV-016 | |
| | | | | Field Sample Date | 3/25/2022 | | 3/24/2022 | | 3/23/2022 | |
| | | | | Field Sample ID | 360175-GV014005 | | 360175-GV015005 | | 360175-GV016005 | |
| | | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| G | TO15 | Styrene | UG/M3 | | 0.85 | U | 0.85 | U | 0.85 | U |
| G | TO15 | Tetrachloroethene | UG/M3 | | 11 | | 3.5 | | 3 | |
| G | TO15 | Tetrahydrofuran | UG/M3 | | 5.9 | U | 5.9 | U | 5.9 | U |
| G | TO15 | Toluene | UG/M3 | | 1.6 | | 6.5 | | 5.2 | |
| G | TO15 | trans-1,2-Dichloroethene | UG/M3 | | 0.79 | U | 0.79 | U | 0.79 | U |
| G | TO15 | trans-1,3-Dichloropropene | UG/M3 | | 0.91 | U | 0.91 | U | 0.91 | U |
| G | TO15 | Trichloroethene | UG/M3 | | 1.1 | U | 1.1 | U | 1.1 | U |
| G | TO15 | Trichlorofluoromethane | UG/M3 | | 1.4 | J | 1.4 | J | 1.4 | J |
| G | TO15 | Vinyl acetate | UG/M3 | | 14 | U | 14 | U | 14 | U |
| G | TO15 | Vinyl chloride | UG/M3 | | 0.51 | U | 0.51 | U | 0.51 | U |
| G | TO15 | Xylene, o | UG/M3 | | 0.87 | U | 1.1 | | 0.82 | J |
| G | TO15 | Xylenes (m&p) | UG/M3 | | 1.7 | U | 3.2 | | 2.4 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1819 | |
|---|---|---|---|---|---|
| | | | Location | GV-017 | |
| | | | Field Sample Date | 3/24/2022 | |
| | | | Field Sample ID | 360175-GV017005 | |
| | | | Qc Code | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier |
| G | TO15 | 1,1,1-Trichloroethane | UG/M3 | 1.1 | U |
| G | TO15 | 1,1,2,2-Tetrachloroethane | UG/M3 | 1.4 | U |
| G | TO15 | 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | UG/M3 | 6.1 | U |
| G | TO15 | 1,1,2-Trichloroethane | UG/M3 | 1.1 | U |
| G | TO15 | 1,1-Dichloroethane | UG/M3 | 0.81 | U |
| G | TO15 | 1,1-Dichloroethene | UG/M3 | 0.79 | U |
| G | TO15 | 1,2,4-Trichlorobenzene | UG/M3 | 1.5 | U |
| G | TO15 | 1,2,4-Trimethylbenzene | UG/M3 | 0.98 | U |
| G | TO15 | 1,2-Dibromoethane | UG/M3 | 1.5 | U |
| G | TO15 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane | UG/M3 | 1.4 | U |
| G | TO15 | 1,2-Dichlorobenzene | UG/M3 | 1.2 | U |
| G | TO15 | 1,2-Dichloroethane | UG/M3 | 0.81 | U |
| G | TO15 | 1,2-Dichloropropane | UG/M3 | 0.92 | U |
| G | TO15 | 1,3,5-Trimethylbenzene | UG/M3 | 0.59 | J |
| G | TO15 | 1,3-Butadiene | UG/M3 | 0.44 | U |
| G | TO15 | 1,3-Dichlorobenzene | UG/M3 | 1.2 | U |
| G | TO15 | 1,4-Dichlorobenzene | UG/M3 | 1.2 | U |
| G | TO15 | 1,4-Dioxane | UG/M3 | 7.2 | U |
| G | TO15 | 2-Butanone | UG/M3 | 24 | U |
| G | TO15 | 2-Hexanone | UG/M3 | 0.82 | U |
| G | TO15 | 2-Propanol | UG/M3 | 32 | |
| G | TO15 | 4-Ethyltoluene | UG/M3 | 0.98 | U |
| G | TO15 | 4-Methyl-2-pentanone | UG/M3 | 0.82 | U |
| G | TO15 | Acetone | UG/M3 | 25 | |
| G | TO15 | Benzene | UG/M3 | 2.5 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22C1819 | |
|---|---|---|---|---|---|
| | | | **Location** | GV-017 | |
| | | | **Field Sample Date** | 3/24/2022 | |
| | | | **Field Sample ID** | 360175-GV017005 | |
| | | | **Qc Code** | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier |
| G | TO15 | Benzyl chloride | UG/M3 | 1 | U |
| G | TO15 | Bromodichloromethane | UG/M3 | 1.3 | U |
| G | TO15 | Bromoform | UG/M3 | 2.1 | U |
| G | TO15 | Bromomethane | UG/M3 | 0.78 | U |
| G | TO15 | Carbon disulfide | UG/M3 | 6.2 | U |
| G | TO15 | Carbon tetrachloride | UG/M3 | 1.3 | U |
| G | TO15 | Chlorobenzene | UG/M3 | 0.92 | U |
| G | TO15 | Chloroethane | UG/M3 | 0.53 | U |
| G | TO15 | Chloroform | UG/M3 | 0.98 | |
| G | TO15 | Chloromethane | UG/M3 | 0.83 | U |
| G | TO15 | cis-1,2-Dichloroethene | UG/M3 | 0.79 | U |
| G | TO15 | cis-1,3-Dichloropropene | UG/M3 | 0.91 | U |
| G | TO15 | Cyclohexane | UG/M3 | 5.6 | |
| G | TO15 | Dibromochloromethane | UG/M3 | 1.7 | U |
| G | TO15 | Dichlorodifluoromethane | UG/M3 | 2.1 | |
| G | TO15 | Ethanol | UG/M3 | 200 | |
| G | TO15 | Ethyl acetate | UG/M3 | 7.2 | U |
| G | TO15 | Ethylbenzene | UG/M3 | 5 | |
| G | TO15 | Heptane | UG/M3 | 7.2 | |
| G | TO15 | Hexachlorobutadiene | UG/M3 | 2.1 | U |
| G | TO15 | Hexane | UG/M3 | 8.8 | J |
| G | TO15 | Methyl Tertbutyl Ether | UG/M3 | 0.72 | U |
| G | TO15 | Methylene chloride | UG/M3 | 6.9 | U |
| G | TO15 | Naphthalene | UG/M3 | 1 | U |
| G | TO15 | Propylene | UG/M3 | 14 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
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JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22C1819 | |
|---|---|---|---|---|---|
| | | | **Location** | GV-017 | |
| | | | **Field Sample Date** | 3/24/2022 | |
| | | | **Field Sample ID** | 360175-GV017005 | |
| | | | **Qc Code** | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier |
| G | TO15 | Styrene | UG/M3 | 0.85 | U |
| G | TO15 | Tetrachloroethene | UG/M3 | 5.3 | |
| G | TO15 | Tetrahydrofuran | UG/M3 | 5.9 | U |
| G | TO15 | Toluene | UG/M3 | 42 | |
| G | TO15 | trans-1,2-Dichloroethene | UG/M3 | 0.79 | U |
| G | TO15 | trans-1,3-Dichloropropene | UG/M3 | 0.91 | U |
| G | TO15 | Trichloroethene | UG/M3 | 1.1 | U |
| G | TO15 | Trichlorofluoromethane | UG/M3 | 1.5 | J |
| G | TO15 | Vinyl acetate | UG/M3 | 14 | U |
| G | TO15 | Vinyl chloride | UG/M3 | 0.51 | U |
| G | TO15 | Xylene, o | UG/M3 | 5.1 | |
| G | TO15 | Xylenes (m&p) | UG/M3 | 21 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22C1692 | | 22C1692 | | 22C1692 | | 22C1692 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | DP-02 | | DP-04 | | DP-05 | | DP-05 | |
| | | | **Field Sample Date** | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | | **Field Sample ID** | 360175-DP002011 | | 360175-DP004011 | | 360175-DP005011 | | 360175-DP005011D | |
| | | | **Qc Code** | FS | | FS | | FS | | FD | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8270E | 1,2,4,5-Tetrachlorobenzene | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 1,2,4-Trichlorobenzene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | 1,2-Dichlorobenzene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | 1,2-Diphenylhydrazine | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 1,3-Dichlorobenzene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | 1,4-Dichlorobenzene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | 1-Methylnaphthalene | UG/L | 4.8 | U | 3.9 | J | 4.9 | U | 5 | U |
| L | 8270E | 2,2'-Dichlorodiisopropylether | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 2,4,5-Trichlorophenol | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 2,4,6-Trichlorophenol | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 2,4-Dichlorophenol | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 2,4-Dimethylphenol | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 2,4-Dinitrophenol | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 2,4-Dinitrotoluene | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 2,6-Dinitrotoluene | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 2-Chloronaphthalene | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 2-Chlorophenol | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 2-Methylnaphthalene | UG/L | 4.8 | U | 1.4 | J | 4.9 | U | 5 | U |
| L | 8270E | 2-Methylphenol | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 2-Nitroaniline | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 2-Nitrophenol | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 3 & 4 Methylphenol | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 3,3'-Dichlorobenzidine | UG/L | 9.6 | UJ | 9.6 | UJ | 9.7 | UJ | 9.9 | UJ |
| L | 8270E | 3-Nitroaniline | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 4,6-Dinitro-2-methylphenol | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
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JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22C1692 | | 22C1692 | | 22C1692 | | 22C1692 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | DP-02 | | DP-04 | | DP-05 | | DP-05 | |
| | | | **Field Sample Date** | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | | **Field Sample ID** | 360175-DP002011 | | 360175-DP004011 | | 360175-DP005011 | | 360175-DP005011D | |
| | | | **Qc Code** | FS | | FS | | FS | | FD | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8270E | 4-Bromophenyl phenyl ether | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 4-Chloro-3-methylphenol | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 4-Chloroaniline | UG/L | 9.6 | UJ | 9.6 | UJ | 9.7 | UJ | 9.9 | UJ |
| L | 8270E | 4-Chlorophenyl phenyl ether | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 4-Nitroaniline | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | 4-Nitrophenol | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | Acenaphthene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | Acenaphthylene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | Acetophenone | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | Aniline | UG/L | 4.8 | UJ | 4.8 | UJ | 4.9 | UJ | 5 | UJ |
| L | 8270E | Anthracene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | Benzidine | UG/L | 19 | UJ | 19 | UJ | 19 | UJ | 20 | UJ |
| L | 8270E | Benzo(a)anthracene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | Benzo(a)pyrene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | Benzo(b)fluoranthene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | Benzo(ghi)perylene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | Benzo(k)fluoranthene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | Benzoic Acid | UG/L | 9.6 | UJ | 9.6 | UJ | | R | | R |
| L | 8270E | Bis(2-Chloroethoxy)methane | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | Bis(2-Chloroethyl)ether | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | Bis(2-Ethylhexyl)phthalate | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | Butylbenzylphthalate | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | Carbazole | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | Chrysene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | Di-n-butylphthalate | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |

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JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22C1692 | | 22C1692 | | 22C1692 | | 22C1692 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | DP-02 | | DP-04 | | DP-05 | | DP-05 | |
| | | | **Field Sample Date** | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | | **Field Sample ID** | 360175-DP002011 | | 360175-DP004011 | | 360175-DP005011 | | 360175-DP005011D | |
| | | | **Qc Code** | FS | | FS | | FS | | FD | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8270E | Di-n-octylphthalate | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | Dibenz(a,h)anthracene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | Dibenzofuran | UG/L | 4.8 | U | 0.63 | J | 4.9 | U | 5 | U |
| L | 8270E | Diethylphthalate | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | Dimethylphthalate | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | Fluoranthene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | Fluorene | UG/L | 4.8 | U | 0.87 | J | 4.9 | U | 5 | U |
| L | 8270E | Hexachlorobenzene | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | Hexachlorobutadiene | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | Hexachlorocyclopentadiene | UG/L | 9.6 | UJ | 9.6 | UJ | 9.7 | UJ | 9.9 | UJ |
| L | 8270E | Hexachloroethane | UG/L | 9.6 | UJ | 9.6 | UJ | 9.7 | UJ | 9.9 | UJ |
| L | 8270E | Indeno(1,2,3-cd)pyrene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | Isophorone | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | N-Nitrosodi-n-propylamine | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | N-Nitrosodimethylamine | UG/L | 9.6 | UJ | 9.6 | UJ | 9.7 | UJ | 9.9 | UJ |
| L | 8270E | N-Nitrosodiphenylamine | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | Naphthalene | UG/L | 4.8 | U | 0.62 | J | 4.9 | U | 5 | U |
| L | 8270E | Nitrobenzene | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | Pentachloronitrobenzene | UG/L | 9.6 | U | 9.6 | U | 9.7 | U | 9.9 | U |
| L | 8270E | Pentachlorophenol | UG/L | 9.6 | UJ | 9.6 | UJ | 9.7 | UJ | 9.9 | UJ |
| L | 8270E | Phenanthrene | UG/L | 4.8 | U | 1.1 | J | 4.9 | U | 5 | U |
| L | 8270E | Phenol | UG/L | 9.6 | UJ | 9.6 | UJ | 9.7 | UJ | 9.9 | UJ |
| L | 8270E | Pyrene | UG/L | 4.8 | U | 4.8 | U | 4.9 | U | 5 | U |
| L | 8270E | Pyridine | UG/L | 4.8 | UJ | 4.8 | UJ | 4.9 | UJ | 5 | UJ |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1692 | | 22C1692 | | 22C1692 | | 22C1692 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Location | DP-02 | | DP-04 | | DP-05 | | DP-05 | |
| | | | Field Sample Date | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | | Field Sample ID | 360175-DP002011 | | 360175-DP004011 | | 360175-DP005011 | | 360175-DP005011D | |
| | | | Qc Code | FS | | FS | | FS | | FD | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8081B | 4,4'-DDD | UG/L | 0.04 | U | 0.04 | U | 0.043 | U | 0.04 | U |
| L | 8081B | 4,4'-DDE | UG/L | 0.04 | U | 0.04 | U | 0.043 | U | 0.04 | U |
| L | 8081B | 4,4'-DDT | UG/L | 0.04 | U | 0.04 | U | 0.043 | U | 0.04 | U |
| L | 8081B | Alachlor | UG/L | 0.2 | U | 0.2 | U | 0.22 | U | 0.2 | U |
| L | 8081B | Aldrin | UG/L | 0.05 | U | 0.05 | U | 0.054 | U | 0.05 | U |
| L | 8081B | Alpha-BHC | UG/L | 0.05 | U | 0.05 | U | 0.054 | U | 0.05 | U |
| L | 8081B | Beta-BHC | UG/L | 0.05 | U | 0.05 | U | 0.054 | U | 0.05 | U |
| L | 8081B | Chlordane | UG/L | 0.2 | U | 0.2 | U | 0.22 | U | 0.2 | U |
| L | 8081B | Delta-BHC | UG/L | 0.05 | U | 0.05 | U | 0.054 | U | 0.05 | U |
| L | 8081B | Dieldrin | UG/L | 0.002 | U | 0.002 | U | 0.0022 | U | 0.002 | U |
| L | 8081B | Endosulfan I | UG/L | 0.05 | U | 0.05 | U | 0.054 | U | 0.05 | U |
| L | 8081B | Endosulfan II | UG/L | 0.08 | U | 0.08 | U | 0.086 | U | 0.08 | U |
| L | 8081B | Endosulfan sulfate | UG/L | 0.08 | U | 0.08 | U | 0.086 | U | 0.08 | U |
| L | 8081B | Endrin | UG/L | 0.08 | U | 0.08 | U | 0.086 | U | 0.08 | U |
| L | 8081B | Endrin aldehyde | UG/L | 0.08 | U | 0.08 | U | 0.086 | U | 0.08 | U |
| L | 8081B | Endrin ketone | UG/L | 0.08 | U | 0.08 | U | 0.086 | U | 0.08 | U |
| L | 8081B | Gamma-BHC/Lindane | UG/L | 0.03 | U | 0.03 | U | 0.032 | U | 0.03 | U |
| L | 8081B | Heptachlor | UG/L | 0.05 | U | 0.05 | U | 0.054 | U | 0.05 | U |
| L | 8081B | Heptachlor epoxide | UG/L | 0.05 | U | 0.05 | U | 0.054 | U | 0.05 | U |
| L | 8081B | Hexachlorobenzene | UG/L | 0.05 | U | 0.05 | U | 0.054 | U | 0.05 | U |
| L | 8081B | Methoxychlor | UG/L | 0.5 | U | 0.5 | U | 0.54 | U | 0.5 | U |
| L | 8081B | Toxaphene | UG/L | 1 | U | 1 | U | 1.1 | U | 1 | U |
| L | 8082A | Aroclor-1016 | UG/L | 0.2 | U | 0.2 | U | 0.22 | U | 0.2 | U |
| L | 8082A | Aroclor-1221 | UG/L | 0.2 | U | 0.2 | U | 0.22 | U | 0.2 | U |
| L | 8082A | Aroclor-1232 | UG/L | 0.2 | U | 0.2 | U | 0.22 | U | 0.2 | U |

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IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22C1692 | | 22C1692 | | 22C1692 | | 22C1692 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | DP-02 | | DP-04 | | DP-05 | | DP-05 | |
| | | | **Field Sample Date** | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | | **Field Sample ID** | 360175-DP002011 | | 360175-DP004011 | | 360175-DP005011 | | 360175-DP005011D | |
| | | | **Qc Code** | FS | | FS | | FS | | FD | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 8082A | Aroclor-1242 | UG/L | 0.2 | U | 0.2 | U | 0.22 | U | 0.2 | U |
| L | 8082A | Aroclor-1248 | UG/L | 0.2 | U | 0.2 | U | 0.22 | U | 0.2 | U |
| L | 8082A | Aroclor-1254 | UG/L | 0.2 | U | 0.2 | U | 0.22 | U | 0.2 | U |
| L | 8082A | Aroclor-1260 | UG/L | 0.2 | U | 0.2 | U | 0.22 | U | 0.2 | U |
| L | 8082A | Aroclor-1262 | UG/L | 0.2 | U | 0.2 | U | 0.22 | U | 0.2 | U |
| L | 8082A | Aroclor-1268 | UG/L | 0.2 | U | 0.2 | U | 0.22 | U | 0.2 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1692 | | 22C1692 | | 22C1692 | | 22C1692 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Location | DP-02 | | DP-04 | | DP-05 | | DP-05 | |
| | | | Field Sample Date | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | | 3/22/2022 | |
| | | | Field Sample ID | 360175-DP002011 | | 360175-DP004011 | | 360175-DP005011 | | 360175-DP005011D | |
| | | | Qc Code | FS | | FS | | FS | | FD | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | 6010D | Aluminum | MG/L | 0.073 | | 0.074 | | 0.015 | J | 0.021 | J |
| L | 6010D | Antimony | MG/L | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| L | 6010D | Arsenic | MG/L | 0.01 | U | 0.018 | | 0.01 | U | 0.01 | U |
| L | 6010D | Barium | MG/L | 0.039 | J | 0.052 | | 0.041 | J | 0.042 | J |
| L | 6010D | Beryllium | MG/L | 0.004 | U | 0.004 | U | 0.004 | U | 0.004 | U |
| L | 6010D | Cadmium | MG/L | 0.004 | U | 0.004 | U | 0.004 | U | 0.004 | U |
| L | 6010D | Calcium | MG/L | 67 | | 120 | | 74 | | 74 | |
| L | 6010D | Chromium | MG/L | 0.01 | U | 0.01 | U | 0.01 | U | 0.01 | U |
| L | 6010D | Cobalt | MG/L | 0.0016 | J | 0.0052 | J | 0.01 | U | 0.01 | U |
| L | 6010D | Copper | MG/L | 0.01 | U | 0.01 | U | 0.01 | U | 0.01 | U |
| L | 6010D | Iron | MG/L | 0.15 | | 6.4 | | 0.045 | J | 0.044 | J |
| L | 6010D | Lead | MG/L | 0.01 | U | 0.01 | U | 0.01 | U | 0.01 | U |
| L | 6010D | Magnesium | MG/L | 23 | | 23 | | 26 | | 26 | |
| L | 6010D | Manganese | MG/L | 0.053 | | 1.5 | | 0.019 | | 0.019 | |
| L | 6010D | Nickel | MG/L | 0.01 | U | 0.01 | U | 0.01 | U | 0.01 | U |
| L | 6010D | Potassium | MG/L | 4.8 | | 5.3 | | 4.7 | | 4.8 | |
| L | 6010D | Selenium | MG/L | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| L | 6010D | Silver | MG/L | 0.01 | U | 0.01 | U | 0.01 | U | 0.01 | U |
| L | 6010D | Sodium | MG/L | 39 | | 22 | | 26 | | 26 | |
| L | 6010D | Thallium | MG/L | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| L | 6010D | Vanadium | MG/L | 0.0076 | J | 0.0082 | J | 0.0067 | J | 0.0073 | J |
| L | 6010D | Zinc | MG/L | 0.0051 | J | 0.005 | J | 0.0054 | J | 0.0047 | J |
| L | 7470A | Mercury | MG/L | 0.0001 | U | 0.0001 | U | 0.0001 | U | 0.0001 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1815 | | 22C1815 | | 22C1815 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | DP-008 | | DP-009 | | DP-010 | |
| | | | Field Sample Date | 3/23/2022 | | 3/23/2022 | | 3/23/2022 | |
| | | | Field Sample ID | 360175-DP008011 | | 360175-DP00909 | | 360175-DP01009 | |
| | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | SOP-454 PFAS | 11Cl-PF3OUdS (F53B Minor) | NG/L | 1.8 | U | 1.8 | U | 2.1 | U |
| L | SOP-454 PFAS | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NG/L | 1.8 | U | 1.8 | U | 2.1 | U |
| L | SOP-454 PFAS | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | NG/L | 1.8 | UJ | 1.8 | U | 2.1 | UJ |
| L | SOP-454 PFAS | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | NG/L | 0.39 | J | 1.2 | J | 2.1 | UJ |
| L | SOP-454 PFAS | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | NG/L | 1.8 | UJ | 1.8 | U | 2.1 | UJ |
| L | SOP-454 PFAS | 9Cl-PF3ONS (F53B Major) | NG/L | 1.8 | U | 1.8 | U | 2.1 | U |
| L | SOP-454 PFAS | Hexafluoropropylene oxide dimer acid (HFPO-DA) | NG/L | 1.8 | U | 1.8 | U | 2.1 | U |
| L | SOP-454 PFAS | N-EtFOSAA | NG/L | 1.8 | UJ | 1.8 | U | 2.1 | U |
| L | SOP-454 PFAS | N-MeFOSAA | NG/L | 1.8 | UJ | 1.8 | U | 2.1 | U |
| L | SOP-454 PFAS | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NG/L | 1.8 | U | 1.8 | U | 2.1 | U |
| L | SOP-454 PFAS | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | NG/L | 1.8 | U | 1.8 | U | 2.1 | U |
| L | SOP-454 PFAS | Perfluoro-1-butanesulfonamide (FBSA) | NG/L | 8.3 | | 3.6 | | 1.2 | J |
| L | SOP-454 PFAS | Perfluoro-1-hexanesulfonamide (FHxSA) | NG/L | 1.8 | U | 1.8 | U | 2.1 | U |
| L | SOP-454 PFAS | Perfluoro-4-oxapentanoic acid (PFMPA) | NG/L | 1.8 | U | 1 | J | 2.1 | U |
| L | SOP-454 PFAS | Perfluoro-5-oxahexanoic acid (PFMBA) | NG/L | 1.8 | U | 1.8 | U | 2.1 | U |
| L | SOP-454 PFAS | Perfluorobutanesulfonic acid (PFBS) | NG/L | 24 | | 7.6 | | 10 | |
| L | SOP-454 PFAS | Perfluorobutanoic acid (PFBA) | NG/L | 9.8 | | 20 | J | 14 | |
| L | SOP-454 PFAS | Perfluorodecanesulfonic acid (PFDS) | NG/L | 1.8 | U | 1.8 | U | 2.1 | U |
| L | SOP-454 PFAS | Perfluorodecanoic acid (PFDA) | NG/L | 1.8 | U | 5 | | 6.4 | |
| L | SOP-454 PFAS | Perfluorododecanoic acid (PFDoA) | NG/L | 1.8 | UJ | 1.8 | U | 0.58 | J |
| L | SOP-454 PFAS | Perfluoroheptanesulfonic acid (PFHpS) | NG/L | 1.2 | J | 3.2 | | 2.1 | U |
| L | SOP-454 PFAS | Perfluoroheptanoic acid (PFHpA) | NG/L | 12 | | 17 | | 11 | |
| L | SOP-454 PFAS | Perfluorohexanesulfonic acid (PFHxS) | NG/L | 10 | | 3.8 | | 3.3 | |
| L | SOP-454 PFAS | Perfluorohexanoic acid (PFHxA) | NG/L | 18 | | 38 | | 28 | |
| L | SOP-454 PFAS | Perfluorononanesulfonic acid (PFNS) | NG/L | 1.8 | U | 1.8 | U | 2.1 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22C1815 | | 22C1815 | | 22C1815 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | DP-008 | | DP-009 | | DP-010 | |
| | | | **Field Sample Date** | 3/23/2022 | | 3/23/2022 | | 3/23/2022 | |
| | | | **Field Sample ID** | 360175-DP008011 | | 360175-DP00909 | | 360175-DP01009 | |
| | | | **Qc Code** | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | SOP-454 PFAS | Perfluorononanoic acid (PFNA) | NG/L | 9.2 | | 48 | | 9.2 | |
| L | SOP-454 PFAS | Perfluorooctanesulfonamide (FOSA) | NG/L | 1.8 | U | 1.8 | UJ | 2.1 | U |
| L | SOP-454 PFAS | Perfluorooctanesulfonic acid (PFOS) | NG/L | 23 | | 160 | | 30 | |
| L | SOP-454 PFAS | Perfluorooctanoic acid (PFOA) | NG/L | 56 | | 95 | | 46 | |
| L | SOP-454 PFAS | Perfluoropentanoic acid (PFPeA) | NG/L | 19 | | 51 | | 31 | |
| L | SOP-454 PFAS | Perfluoropetanesulfonic acid (PFPeS) | NG/L | 1 | J | 1.8 | U | 0.44 | J |
| L | SOP-454 PFAS | Perfluorotetradecanoic acid (PFTA) | NG/L | 1.8 | UJ | 1.8 | UJ | 2.1 | UJ |
| L | SOP-454 PFAS | Perfluorotridecanoic acid (PFTrDA) | NG/L | 1.8 | U | 1.8 | U | 2.1 | U |
| L | SOP-454 PFAS | Perfluoroundecanoic acid (PFUnA) | NG/L | 1.8 | U | 1.8 | U | 0.73 | J |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22C1815 | | 22C1815 | | 22F0915 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | DP-015 | | PRB | | DP-02 | |
| | | | Field Sample Date | 3/23/2022 | | 3/24/2022 | | 6/14/2022 | |
| | | | Field Sample ID | 360175-DP01508 | | 360175-PRB | | 360175-DP002011 | |
| | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | SOP-454 PFAS | 11Cl-PF3OUdS (F53B Minor) | NG/L | 2 | U | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NG/L | 2 | U | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | NG/L | 2 | UJ | 1.8 | U | 1.8 | UJ |
| L | SOP-454 PFAS | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | NG/L | 2 | U | 0.63 | J | 1.8 | UJ |
| L | SOP-454 PFAS | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | NG/L | 2 | U | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | 9Cl-PF3ONS (F53B Major) | NG/L | 2 | U | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | Hexafluoropropylene oxide dimer acid (HFPO-DA) | NG/L | 2 | U | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | N-EtFOSAA | NG/L | 2 | UJ | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | N-MeFOSAA | NG/L | 2 | UJ | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NG/L | 2 | U | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | NG/L | 2 | U | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluoro-1-butanesulfonamide (FBSA) | NG/L | 0.74 | J | 1.8 | U | 0.29 | J |
| L | SOP-454 PFAS | Perfluoro-1-hexanesulfonamide (FHxSA) | NG/L | 2 | U | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluoro-4-oxapentanoic acid (PFMPA) | NG/L | 2 | U | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluoro-5-oxahexanoic acid (PFMBA) | NG/L | 2 | U | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluorobutanesulfonic acid (PFBS) | NG/L | 5.8 | | 1.8 | U | 8.9 | |
| L | SOP-454 PFAS | Perfluorobutanoic acid (PFBA) | NG/L | 11 | J | 1.8 | U | 8.8 | |
| L | SOP-454 PFAS | Perfluorodecanesulfonic acid (PFDS) | NG/L | 2 | U | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluorodecanoic acid (PFDA) | NG/L | 13 | | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluorododecanoic acid (PFDoA) | NG/L | 2 | UJ | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluoroheptanesulfonic acid (PFHpS) | NG/L | 2 | U | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluoroheptanoic acid (PFHpA) | NG/L | 6.9 | | 1.8 | U | 4.2 | |
| L | SOP-454 PFAS | Perfluorohexanesulfonic acid (PFHxS) | NG/L | 3.2 | | 1.8 | U | 2.7 | |
| L | SOP-454 PFAS | Perfluorohexanoic acid (PFHxA) | NG/L | 19 | | 1.8 | U | 7.5 | |
| L | SOP-454 PFAS | Perfluorononanesulfonic acid (PFNS) | NG/L | 2 | U | 1.8 | U | 1.8 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22C1815 | | 22C1815 | | 22F0915 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Location** | DP-015 | | PRB | | DP-02 | |
| | | | **Field Sample Date** | 3/23/2022 | | 3/24/2022 | | 6/14/2022 | |
| | | | **Field Sample ID** | 360175-DP01508 | | 360175-PRB | | 360175-DP002011 | |
| | | | **Qc Code** | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | SOP-454 PFAS | Perfluorononanoic acid (PFNA) | NG/L | 4.6 | | 1.8 | U | 77 | |
| L | SOP-454 PFAS | Perfluorooctanesulfonamide (FOSA) | NG/L | 2 | UJ | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluorooctanesulfonic acid (PFOS) | NG/L | 31 | | 1.8 | U | 12 | |
| L | SOP-454 PFAS | Perfluorooctanoic acid (PFOA) | NG/L | 20 | | 1.8 | U | 17 | |
| L | SOP-454 PFAS | Perfluoropentanoic acid (PFPeA) | NG/L | 35 | | 1.8 | U | 8.7 | |
| L | SOP-454 PFAS | Perfluoropetanesulfonic acid (PFPeS) | NG/L | 2 | U | 1.8 | U | 0.32 | J |
| L | SOP-454 PFAS | Perfluorotetradecanoic acid (PFTA) | NG/L | | R | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluorotridecanoic acid (PFTrDA) | NG/L | 2 | U | 1.8 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluoroundecanoic acid (PFUnA) | NG/L | 0.45 | J | 1.8 | U | 1.8 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22F0915 | | 22F0915 | | 22F0915 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | DP-04 | | DP-05 | | DP-05 | |
| | | | Field Sample Date | 6/14/2022 | | 6/14/2022 | | 6/14/2022 | |
| | | | Field Sample ID | 360175-DP004011 | | 360175-DP005011 | | 360175-DP005011-DUP | |
| | | | Qc Code | FS | | FS | | FD | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | SOP-454 PFAS | 11Cl-PF3OUdS (F53B Minor) | NG/L | 2 | U | 1.7 | U | 1.8 | U |
| L | SOP-454 PFAS | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NG/L | 2 | U | 1.7 | U | 1.8 | U |
| L | SOP-454 PFAS | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | NG/L | 2 | U | 1.7 | UJ | 1.8 | U |
| L | SOP-454 PFAS | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | NG/L | 2 | U | 1.7 | U | 0.34 | J |
| L | SOP-454 PFAS | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | NG/L | 2 | U | 1.7 | UJ | 1.8 | U |
| L | SOP-454 PFAS | 9Cl-PF3ONS (F53B Major) | NG/L | 2 | U | 1.7 | U | 1.8 | U |
| L | SOP-454 PFAS | Hexafluoropropylene oxide dimer acid (HFPO-DA) | NG/L | 2 | U | 1.7 | U | 1.8 | U |
| L | SOP-454 PFAS | N-EtFOSAA | NG/L | 0.97 | J+ | 1.7 | UJ | 1.8 | U |
| L | SOP-454 PFAS | N-MeFOSAA | NG/L | 2 | UJ | 1.7 | UJ | 1.8 | U |
| L | SOP-454 PFAS | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NG/L | 2 | U | 1.7 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | NG/L | 2 | U | 1.7 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluoro-1-butanesulfonamide (FBSA) | NG/L | 4 | | 0.28 | J | 0.27 | J |
| L | SOP-454 PFAS | Perfluoro-1-hexanesulfonamide (FHxSA) | NG/L | 2 | U | 1.7 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluoro-4-oxapentanoic acid (PFMPA) | NG/L | 2 | U | 1.7 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluoro-5-oxahexanoic acid (PFMBA) | NG/L | 2 | U | 1.7 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluorobutanesulfonic acid (PFBS) | NG/L | 14 | | 8.4 | | 7.9 | |
| L | SOP-454 PFAS | Perfluorobutanoic acid (PFBA) | NG/L | 14 | J | 9.1 | J+ | 8 | J+ |
| L | SOP-454 PFAS | Perfluorodecanesulfonic acid (PFDS) | NG/L | 2 | U | 1.7 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluorodecanoic acid (PFDA) | NG/L | 7.9 | | 1.7 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluorododecanoic acid (PFDoA) | NG/L | | R | | R | 1.8 | UJ |
| L | SOP-454 PFAS | Perfluoroheptanesulfonic acid (PFHpS) | NG/L | 3.1 | | 1.7 | U | 1 | J |
| L | SOP-454 PFAS | Perfluoroheptanoic acid (PFHpA) | NG/L | 17 | | 4.6 | | 4.7 | |
| L | SOP-454 PFAS | Perfluorohexanesulfonic acid (PFHxS) | NG/L | 9.6 | | 2.6 | | 2.6 | |
| L | SOP-454 PFAS | Perfluorohexanoic acid (PFHxA) | NG/L | 22 | | 6.9 | | 7.4 | |
| L | SOP-454 PFAS | Perfluorononanesulfonic acid (PFNS) | NG/L | 2 | U | 1.7 | U | 1.8 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
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JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22F0915 | | 22F0915 | | 22F0915 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Location | DP-04 | | DP-05 | | DP-05 | |
| | | | Field Sample Date | 6/14/2022 | | 6/14/2022 | | 6/14/2022 | |
| | | | Field Sample ID | 360175-DP004011 | | 360175-DP005011 | | 360175-DP005011-DUP | |
| | | | Qc Code | FS | | FS | | FD | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| L | SOP-454 PFAS | Perfluorononanoic acid (PFNA) | NG/L | 23 | | 3.6 | | 3.8 | |
| L | SOP-454 PFAS | Perfluorooctanesulfonamide (FOSA) | NG/L | 2.2 | J | | R | 1.8 | UJ |
| L | SOP-454 PFAS | Perfluorooctanesulfonic acid (PFOS) | NG/L | 230 | | 29 | J+ | 34 | J+ |
| L | SOP-454 PFAS | Perfluorooctanoic acid (PFOA) | NG/L | 42 | | 16 | J+ | 17 | J+ |
| L | SOP-454 PFAS | Perfluoropentanoic acid (PFPeA) | NG/L | 32 | | 7.7 | J+ | 8.3 | J+ |
| L | SOP-454 PFAS | Perfluoropetanesulfonic acid (PFPeS) | NG/L | 1.2 | J | 0.37 | J | 0.36 | J |
| L | SOP-454 PFAS | Perfluorotetradecanoic acid (PFTA) | NG/L | | R | | R | | R |
| L | SOP-454 PFAS | Perfluorotridecanoic acid (PFTrDA) | NG/L | 2 | U | 1.7 | U | 1.8 | U |
| L | SOP-454 PFAS | Perfluoroundecanoic acid (PFUnA) | NG/L | 2 | UJ | 1.7 | UJ | 1.8 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22F0915 | |
|---|---|---|---|---|---|
| | | | Location | MW-03D | |
| | | | Field Sample Date | 6/14/2022 | |
| | | | Field Sample ID | 360175-MW003D020 | |
| | | | Qc Code | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier |
| L | SOP-454 PFAS | 11Cl-PF3OUdS (F53B Minor) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | NG/L | 1.7 | UJ |
| L | SOP-454 PFAS | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | NG/L | 1.7 | UJ |
| L | SOP-454 PFAS | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | 9Cl-PF3ONS (F53B Major) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Hexafluoropropylene oxide dimer acid (HFPO-DA) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | N-EtFOSAA | NG/L | 1.7 | U |
| L | SOP-454 PFAS | N-MeFOSAA | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Perfluoro-1-butanesulfonamide (FBSA) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Perfluoro-1-hexanesulfonamide (FHxSA) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Perfluoro-4-oxapentanoic acid (PFMPA) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Perfluoro-5-oxahexanoic acid (PFMBA) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Perfluorobutanesulfonic acid (PFBS) | NG/L | 7.7 | |
| L | SOP-454 PFAS | Perfluorobutanoic acid (PFBA) | NG/L | 9.9 | |
| L | SOP-454 PFAS | Perfluorodecanesulfonic acid (PFDS) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Perfluorodecanoic acid (PFDA) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Perfluorododecanoic acid (PFDoA) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Perfluoroheptanesulfonic acid (PFHpS) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Perfluoroheptanoic acid (PFHpA) | NG/L | 4.9 | |
| L | SOP-454 PFAS | Perfluorohexanesulfonic acid (PFHxS) | NG/L | 2.5 | |
| L | SOP-454 PFAS | Perfluorohexanoic acid (PFHxA) | NG/L | 9.9 | |
| L | SOP-454 PFAS | Perfluorononanesulfonic acid (PFNS) | NG/L | 1.7 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22F0915 | |
|---|---|---|---|---|---|
| | | | **Location** | MW-03D | |
| | | | **Field Sample Date** | 6/14/2022 | |
| | | | **Field Sample ID** | 360175-MW003D020 | |
| | | | **Qc Code** | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier |
| L | SOP-454 PFAS | Perfluorononanoic acid (PFNA) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Perfluorooctanesulfonamide (FOSA) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Perfluorooctanesulfonic acid (PFOS) | NG/L | 2 | |
| L | SOP-454 PFAS | Perfluorooctanoic acid (PFOA) | NG/L | 17 | |
| L | SOP-454 PFAS | Perfluoropentanoic acid (PFPeA) | NG/L | 11 | |
| L | SOP-454 PFAS | Perfluoropetanesulfonic acid (PFPeS) | NG/L | 0.34 | J |
| L | SOP-454 PFAS | Perfluorotetradecanoic acid (PFTA) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Perfluorotridecanoic acid (PFTrDA) | NG/L | 1.7 | U |
| L | SOP-454 PFAS | Perfluoroundecanoic acid (PFUnA) | NG/L | 1.7 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22F0915 | |
|---|---|---|---|---|---|
| | | | **Location** | WC | |
| | | | **Field Sample Date** | 6/14/2022 | |
| | | | **Field Sample ID** | 360175-WC | |
| | | | **Qc Code** | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Result | Qualifier |
| S | SOP-466 PFAS | 11Cl-PF3OUdS (F53B Minor) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | 9Cl-PF3ONS (F53B Major) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Hexafluoropropylene oxide dimer acid (HFPO-DA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | N-EtFOSAA | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | N-MeFOSAA | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluoro-1-butanesulfonamide (FBSA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluoro-1-hexanesulfonamide (FHxSA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluoro-4-oxapentanoic acid (PFMPA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluoro-5-oxahexanoic acid (PFMBA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluorobutanesulfonic acid (PFBS) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluorobutanoic acid (PFBA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluorodecanesulfonic acid (PFDS) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluorodecanoic acid (PFDA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluorododecanoic acid (PFDoA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluoroheptanesulfonic acid (PFHpS) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluoroheptanoic acid (PFHpA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluorohexanesulfonic acid (PFHxS) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluorohexanoic acid (PFHxA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluorononanesulfonic acid (PFNS) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluorononanoic acid (PFNA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluorooctanesulfonamide (FOSA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluorooctanesulfonic acid (PFOS) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluorooctanoic acid (PFOA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluoropentanoic acid (PFPeA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluoropetanesulfonic acid (PFPeS) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluorotetradecanoic acid (PFTA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluorotridecanoic acid (PFTrDA) | UG/KG | 0.49 | U |
| S | SOP-466 PFAS | Perfluoroundecanoic acid (PFUnA) | UG/KG | 0.49 | U |
| S | SM2540G | Percent Solids | % BY WT. | 85.6 | |

TABLE 3 - SUMMARY OF QUALIFICATION ACTIONS
DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| Lab SDG | Method | Lab Sample ID | Field Sample ID | Fraction | Parameter | Lab Result | Lab Qualifier | Final Result | Final Qualifier | Val Reason Code | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22A0721 | 8260D | 22A0721-01 | 360175-GW002-14 | N | 1,2-Dibromo-3-chloropropane | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22A0721 | 8260D | 22A0721-01 | 360175-GW002-14 | N | Toluene | 0.23 | J | 1 | U | BL2 | UG/L |
| 22A0721 | 8260D | 22A0721-01 | 360175-GW002-14 | N | Bromomethane | 5 | U | 5 | UJ | ICV%D | UG/L |
| 22A0721 | 8260D | 22A0721-01 | 360175-GW002-14 | N | Naphthalene | 2 | U | 2 | UJ | CCV%D | UG/L |
| 22A0721 | 8260D | 22A0721-01 | 360175-GW002-14 | N | Methylene chloride | 1.3 | J | 1.3 | J+ | CCV%D | UG/L |
| 22A0721 | 8260D | 22A0721-01 | 360175-GW002-14 | N | Chloromethane | 2 | U | 2 | UJ | ICV%D, CCV%D, LCSL | UG/L |
| 22A0721 | 8260D | 22A0721-01RE1 | 360175-GW002-14 | N | Tetrachloroethene | 220 | D | 220 | J | HTG | UG/L |
| 22A0721 | 8260D | 22A0721-02 | 360175-GW002-13 | N | Bromomethane | 5 | U | 5 | UJ | ICV%D | UG/L |
| 22A0721 | 8260D | 22A0721-02 | 360175-GW002-13 | N | 1,2-Dibromo-3-chloropropane | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22A0721 | 8260D | 22A0721-02 | 360175-GW002-13 | N | Naphthalene | 2 | U | 2 | UJ | CCV%D | UG/L |
| 22A0721 | 8260D | 22A0721-02 | 360175-GW002-13 | N | Tetrachloroethene | 3.6 | | 3.6 | J+ | CCV%D | UG/L |
| 22A0721 | 8260D | 22A0721-02 | 360175-GW002-13 | N | Chloromethane | 2 | U | 2 | UJ | ICV%D, CCV%D, LCSL | UG/L |
| 22A0721 | 8260D | 22A0721-03 | 360175-HA001001 | N | Benzene | 0.001 | U | 0.001 | UJ | CCV%D | MG/KG |
| 22A0721 | 8260D | 22A0721-03 | 360175-HA001001 | N | Tetrachloroethene | 3.4 | D | 3.4 | J | HTG | MG/KG |
| 22A0721 | 8260D | 22A0721-03 | 360175-HA001001 | N | Acetic acid, methyl ester | 0.001 | U | 0.001 | UJ | CCV%D, LCSL, MSL | MG/KG |
| 22A0721 | 8260D | 22A0721-03 | 360175-HA001001 | N | 2-Butanone | 0.021 | U | 0.021 | UJ | CCV%D, MSL | MG/KG |
| 22A0721 | 8260D | 22A0721-03 | 360175-HA001001 | N | Chloromethane | 0.0051 | U | 0.0051 | UJ | MSL | MG/KG |
| 22A0721 | 8260D | 22A0721-03 | 360175-HA001001 | N | Bromomethane | 0.0051 | U | 0.0051 | UJ | ICV%D, MSL | MG/KG |
| 22A0721 | 8260D | 22A0721-03 | 360175-HA001001 | N | 1,4-Dioxane | 0.051 | U | 0.051 | UJ | MSL | MG/KG |
| 22A0721 | 8260D | 22A0721-04 | 360175-HA001001D | N | 1,4-Dioxane | 0.043 | U | 0.043 | UJ | MSL | MG/KG |
| 22A0721 | 8260D | 22A0721-04 | 360175-HA001001D | N | Benzene | 0.00085 | U | 0.00085 | UJ | CCV%D | MG/KG |
| 22A0721 | 8260D | 22A0721-04 | 360175-HA001001D | N | Bromomethane | 0.0043 | U | 0.0043 | UJ | ICV%D, MSL | MG/KG |
| 22A0721 | 8260D | 22A0721-04 | 360175-HA001001D | N | Acetic acid, methyl ester | 0.00085 | U | 0.00085 | UJ | CCV%D, LCSL, MSL | MG/KG |
| 22A0721 | 8260D | 22A0721-04 | 360175-HA001001D | N | 2-Butanone | 0.017 | U | 0.017 | UJ | CCV%D, MSL | MG/KG |
| 22A0721 | 8260D | 22A0721-04 | 360175-HA001001D | N | Tetrachloroethene | 4.7 | D | 4.7 | J | HTG | MG/KG |
| 22A0721 | 8260D | 22A0721-04 | 360175-HA001001D | N | Chloromethane | 0.0043 | U | 0.0043 | UJ | MSL | MG/KG |
| 22A0721 | 8260D | 22A0721-05 | 360175-HA002001 | N | Bromomethane | 0.0065 | U | 0.0065 | UJ | ICV%D | MG/KG |
| 22A0721 | 8260D | 22A0721-05 | 360175-HA002001 | N | 2-Butanone | 0.026 | U | 0.026 | UJ | CCV%D | MG/KG |
| 22A0721 | 8260D | 22A0721-05 | 360175-HA002001 | N | Benzene | 0.0013 | U | 0.0013 | UJ | CCV%D | MG/KG |
| 22A0721 | 8260D | 22A0721-05 | 360175-HA002001 | N | Acetic acid, methyl ester | 0.0013 | U | 0.0013 | UJ | CCV%D, LCSL | MG/KG |
| 22A0721 | 8260D | 22A0721-06 | 360175-HA003001 | N | Bromomethane | 0.13 | U | 0.13 | UJ | CCV%D | MG/KG |
| 22A0721 | 8260D | 22A0721-06 | 360175-HA003001 | N | Chloromethane | 0.13 | U | 0.13 | UJ | CCV%D | MG/KG |
| 22A0721 | 8260D | 22A0721-07 | 360175-GW002-15 | N | Chloromethane | 2 | U | 2 | UJ | ICV%D, CCV%D, LCSL | UG/L |
| 22A0721 | 8260D | 22A0721-07 | 360175-GW002-15 | N | Bromomethane | 5 | U | 5 | UJ | ICV%D | UG/L |
| 22A0721 | 8260D | 22A0721-07 | 360175-GW002-15 | N | Tetrachloroethene | 120 | | 120 | J+ | CCV%D | UG/L |
| 22A0721 | 8260D | 22A0721-07 | 360175-GW002-15 | N | Naphthalene | 2 | U | 2 | UJ | CCV%D | UG/L |
| 22A0721 | 8260D | 22A0721-07 | 360175-GW002-15 | N | 1,2-Dibromo-3-chloropropane | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22A0721 | 8260D | 22A0721-08 | 360175-GW002-16 | N | Naphthalene | 2 | U | 2 | UJ | CCV%D | UG/L |
| 22A0721 | 8260D | 22A0721-08 | 360175-GW002-16 | N | 1,2-Dibromo-3-chloropropane | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22A0721 | 8260D | 22A0721-08 | 360175-GW002-16 | N | Chloromethane | 2 | U | 2 | UJ | ICV%D, CCV%D, LCSL | UG/L |
| 22A0721 | 8260D | 22A0721-08 | 360175-GW002-16 | N | Bromomethane | 5 | U | 5 | UJ | ICV%D | UG/L |

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DATA USABILITY SUMMARY REPORT
JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| Lab SDG | Method | Lab Sample ID | Field Sample ID | Fraction | Parameter | Lab Result | Lab Qualifier | Final Result | Final Qualifier | Val Reason Code | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22A0721 | 8260D | 22A0721-08RE1 | 360175-GW002-16 | N | Tetrachloroethene | 2500 | D | 2500 | J | HTG | UG/L |
| 22C1692 | 8270E | 22C1692-01 | 360175-DP002011 | N | N-Nitrosodimethylamine | 9.6 | U | 9.6 | UJ | LCSL | UG/L |
| 22C1692 | 8270E | 22C1692-01 | 360175-DP002011 | N | Benzoic Acid | 9.6 | U | 9.6 | UJ | LCSL | UG/L |
| 22C1692 | 8270E | 22C1692-01 | 360175-DP002011 | N | Hexachloroethane | 9.6 | U | 9.6 | UJ | LCSL | UG/L |
| 22C1692 | 8270E | 22C1692-01 | 360175-DP002011 | N | Pentachlorophenol | 9.6 | U | 9.6 | UJ | CCV%D | UG/L |
| 22C1692 | 8270E | 22C1692-01 | 360175-DP002011 | N | 3,3'-Dichlorobenzidine | 9.6 | U | 9.6 | UJ | ICV%D | UG/L |
| 22C1692 | 8270E | 22C1692-01 | 360175-DP002011 | N | Benzidine | 19 | U | 19 | UJ | ICVRSD, CCV%D, LCSL, LCSRPD | UG/L |
| 22C1692 | 8270E | 22C1692-01 | 360175-DP002011 | N | Aniline | 4.8 | U | 4.8 | UJ | CCV%D | UG/L |
| 22C1692 | 8270E | 22C1692-01 | 360175-DP002011 | N | Hexachlorocyclopentadiene | 9.6 | U | 9.6 | UJ | CCV%D, LCSL | UG/L |
| 22C1692 | 8270E | 22C1692-01 | 360175-DP002011 | N | Pyridine | 4.8 | U | 4.8 | UJ | LCSL, LCSRPD | UG/L |
| 22C1692 | 7470A | 22C1692-01 | 360175-DP002011 | N | Mercury | 0.000073 | JB | 0.0001 | U | BL1 | MG/L |
| 22C1692 | 8270E | 22C1692-01 | 360175-DP002011 | N | 4-Chloroaniline | 9.6 | U | 9.6 | UJ | ICV%D | UG/L |
| 22C1692 | 8260D | 22C1692-01 | 360175-DP002011 | N | 2-Butanone | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-01 | 360175-DP002011 | N | Naphthalene | 2 | U | 2 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-01 | 360175-DP002011 | N | Acrylonitrile | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22C1692 | 8270E | 22C1692-01 | 360175-DP002011 | N | Phenol | 9.6 | U | 9.6 | UJ | LCSL | UG/L |
| 22C1692 | 8260D | 22C1692-01 | 360175-DP002011 | N | 2-Hexanone | 10 | U | 10 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-01 | 360175-DP002011 | N | Acetone | 50 | U | 50 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-01 | 360175-DP002011 | N | t-Butyl alcohol | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-01 | 360175-DP002011 | N | 1,4-Dioxane | 50 | U | 50 | UJ | CCV%D | UG/L |
| 22C1692 | 8270E | 22C1692-02 | 360175-DP004011 | N | Benzoic Acid | 9.6 | U | 9.6 | UJ | LCSL | UG/L |
| 22C1692 | 8270E | 22C1692-02 | 360175-DP004011 | N | Hexachloroethane | 9.6 | U | 9.6 | UJ | LCSL | UG/L |
| 22C1692 | 8270E | 22C1692-02 | 360175-DP004011 | N | Hexachlorocyclopentadiene | 9.6 | U | 9.6 | UJ | CCV%D, LCSL | UG/L |
| 22C1692 | 8270E | 22C1692-02 | 360175-DP004011 | N | 3,3'-Dichlorobenzidine | 9.6 | U | 9.6 | UJ | ICV%D | UG/L |
| 22C1692 | 8270E | 22C1692-02 | 360175-DP004011 | N | Benzidine | 19 | U | 19 | UJ | ICVRSD, CCV%D, LCSL, LCSRPD | UG/L |
| 22C1692 | 7470A | 22C1692-02 | 360175-DP004011 | N | Mercury | 0.000078 | JB | 0.0001 | U | BL1 | MG/L |
| 22C1692 | 8270E | 22C1692-02 | 360175-DP004011 | N | N-Nitrosodimethylamine | 9.6 | U | 9.6 | UJ | LCSL | UG/L |
| 22C1692 | 8270E | 22C1692-02 | 360175-DP004011 | N | Pentachlorophenol | 9.6 | U | 9.6 | UJ | CCV%D | UG/L |
| 22C1692 | 8270E | 22C1692-02 | 360175-DP004011 | N | Aniline | 4.8 | U | 4.8 | UJ | CCV%D | UG/L |
| 22C1692 | 8270E | 22C1692-02 | 360175-DP004011 | N | Pyridine | 4.8 | U | 4.8 | UJ | LCSL, LCSRPD | UG/L |
| 22C1692 | 8270E | 22C1692-02 | 360175-DP004011 | N | Phenol | 9.6 | U | 9.6 | UJ | LCSL | UG/L |
| 22C1692 | 8260D | 22C1692-02 | 360175-DP004011 | N | 1,4-Dioxane | 50 | U | 50 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-02 | 360175-DP004011 | N | 2-Hexanone | 10 | U | 10 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-02 | 360175-DP004011 | N | Acetone | 50 | U | 50 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-02 | 360175-DP004011 | N | Acrylonitrile | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-02 | 360175-DP004011 | N | 2-Butanone | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-02 | 360175-DP004011 | N | Naphthalene | 0.61 | J | 0.61 | J- | CCV%D | UG/L |
| 22C1692 | 8270E | 22C1692-02 | 360175-DP004011 | N | 4-Chloroaniline | 9.6 | U | 9.6 | UJ | ICV%D | UG/L |
| 22C1692 | 8260D | 22C1692-02 | 360175-DP004011 | N | t-Butyl alcohol | 92 | | 92 | J- | CCV%D | UG/L |
| 22C1692 | 8270E | 22C1692-03 | 360175-DP005011 | N | Benzidine | 19 | U | 19 | UJ | ICVRSD, CCV%D, LCSL, LCSRPD | UG/L |
| 22C1692 | 8270E | 22C1692-03 | 360175-DP005011 | N | N-Nitrosodimethylamine | 9.7 | U | 9.7 | UJ | LCSL, MSL | UG/L |

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IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| Lab SDG | Method | Lab Sample ID | Field Sample ID | Fraction | Parameter | Lab Result | Lab Qualifier | Final Result | Final Qualifier | Val Reason Code | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22C1692 | 8270E | 22C1692-03 | 360175-DP005011 | N | Benzoic Acid | 9.7 | U | | R | LCSL, MSL, MSRPD | UG/L |
| 22C1692 | 8270E | 22C1692-03 | 360175-DP005011 | N | Hexachlorocyclopentadiene | 9.7 | U | 9.7 | UJ | CCV%D, LCSL | UG/L |
| 22C1692 | 8270E | 22C1692-03 | 360175-DP005011 | N | Pentachlorophenol | 9.7 | U | 9.7 | UJ | CCV%D | UG/L |
| 22C1692 | 8270E | 22C1692-03 | 360175-DP005011 | N | 3,3'-Dichlorobenzidine | 9.7 | U | 9.7 | UJ | ICV%D | UG/L |
| 22C1692 | 8270E | 22C1692-03 | 360175-DP005011 | N | Aniline | 4.9 | U | 4.9 | UJ | CCV%D | UG/L |
| 22C1692 | 8270E | 22C1692-03 | 360175-DP005011 | N | Hexachloroethane | 9.7 | U | 9.7 | UJ | LCSL | UG/L |
| 22C1692 | 8270E | 22C1692-03 | 360175-DP005011 | N | Pyridine | 4.9 | U | 4.9 | UJ | LCSL, LCSRPD, MSL | UG/L |
| 22C1692 | 8260D | 22C1692-03 | 360175-DP005011 | N | Naphthalene | 2 | U | 2 | UJ | CCV%D, MSL | UG/L |
| 22C1692 | 8270E | 22C1692-03 | 360175-DP005011 | N | 4-Chloroaniline | 9.7 | U | 9.7 | UJ | ICV%D | UG/L |
| 22C1692 | 8270E | 22C1692-03 | 360175-DP005011 | N | Phenol | 9.7 | U | 9.7 | UJ | LCSL, MSL | UG/L |
| 22C1692 | 8260D | 22C1692-03 | 360175-DP005011 | N | Acrylonitrile | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-03 | 360175-DP005011 | N | 1,4-Dioxane | 50 | U | 50 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-03 | 360175-DP005011 | N | 2-Hexanone | 10 | U | 10 | UJ | CCV%D, MSL | UG/L |
| 22C1692 | 8260D | 22C1692-03 | 360175-DP005011 | N | t-Butyl alcohol | 20 | U | 20 | UJ | CCV%D, MSL | UG/L |
| 22C1692 | 8260D | 22C1692-03 | 360175-DP005011 | N | 2-Butanone | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-03 | 360175-DP005011 | N | 1,2-Dibromo-3-chloropropane | 5 | U | 5 | UJ | MSL | UG/L |
| 22C1692 | 8260D | 22C1692-03 | 360175-DP005011 | N | Acetone | 50 | U | 50 | UJ | CCV%D, MSL | UG/L |
| 22C1692 | 8270E | 22C1692-04 | 360175-DP005011D | N | Benzoic Acid | 9.9 | U | | R | LCSL, MSL, MSRPD | UG/L |
| 22C1692 | 8270E | 22C1692-04 | 360175-DP005011D | N | N-Nitrosodimethylamine | 9.9 | U | 9.9 | UJ | LCSL, MSL | UG/L |
| 22C1692 | 8270E | 22C1692-04 | 360175-DP005011D | N | Hexachloroethane | 9.9 | U | 9.9 | UJ | LCSL | UG/L |
| 22C1692 | 8270E | 22C1692-04 | 360175-DP005011D | N | Benzidine | 20 | U | 20 | UJ | ICVRSD, CCV%D, LCSL, LCSRPD | UG/L |
| 22C1692 | 8270E | 22C1692-04 | 360175-DP005011D | N | Pentachlorophenol | 9.9 | U | 9.9 | UJ | CCV%D | UG/L |
| 22C1692 | 8270E | 22C1692-04 | 360175-DP005011D | N | 3,3'-Dichlorobenzidine | 9.9 | U | 9.9 | UJ | ICV%D | UG/L |
| 22C1692 | 8270E | 22C1692-04 | 360175-DP005011D | N | Aniline | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22C1692 | 7470A | 22C1692-04 | 360175-DP005011D | N | Mercury | 0.000073 | JB | 0.0001 | U | BL1 | MG/L |
| 22C1692 | 8270E | 22C1692-04 | 360175-DP005011D | N | Hexachlorocyclopentadiene | 9.9 | U | 9.9 | UJ | CCV%D, LCSL | UG/L |
| 22C1692 | 8270E | 22C1692-04 | 360175-DP005011D | N | Pyridine | 5 | U | 5 | UJ | LCSL, LCSRPD, MSL | UG/L |
| 22C1692 | 8260D | 22C1692-04 | 360175-DP005011D | N | Naphthalene | 2 | U | 2 | UJ | CCV%D, MSL | UG/L |
| 22C1692 | 8270E | 22C1692-04 | 360175-DP005011D | N | 4-Chloroaniline | 9.9 | U | 9.9 | UJ | ICV%D | UG/L |
| 22C1692 | 8260D | 22C1692-04 | 360175-DP005011D | N | Acrylonitrile | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-04 | 360175-DP005011D | N | 1,4-Dioxane | 50 | U | 50 | UJ | CCV%D | UG/L |
| 22C1692 | 8270E | 22C1692-04 | 360175-DP005011D | N | Phenol | 9.9 | U | 9.9 | UJ | LCSL, MSL | UG/L |
| 22C1692 | 8260D | 22C1692-04 | 360175-DP005011D | N | 2-Hexanone | 10 | U | 10 | UJ | CCV%D, MSL | UG/L |
| 22C1692 | 8260D | 22C1692-04 | 360175-DP005011D | N | t-Butyl alcohol | 20 | U | 20 | UJ | CCV%D, MSL | UG/L |
| 22C1692 | 8260D | 22C1692-04 | 360175-DP005011D | N | 2-Butanone | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-04 | 360175-DP005011D | N | 1,2-Dibromo-3-chloropropane | 5 | U | 5 | UJ | MSL | UG/L |
| 22C1692 | 8260D | 22C1692-04 | 360175-DP005011D | N | Acetone | 50 | U | 50 | UJ | CCV%D, MSL | UG/L |
| 22C1692 | 8260D | 22C1692-06 | 360175-DW001-1 | N | 2-Butanone | 40 | UD | 40 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-06 | 360175-DW001-1 | N | Naphthalene | 4 | UD | 4 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-06 | 360175-DW001-1 | N | t-Butyl alcohol | 40 | UD | 40 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-06 | 360175-DW001-1 | N | Acrylonitrile | 10 | UD | 10 | UJ | CCV%D | UG/L |

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IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| Lab SDG | Method | Lab Sample ID | Field Sample ID | Fraction | Parameter | Lab Result | Lab Qualifier | Final Result | Final Qualifier | Val Reason Code | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22C1692 | 8260D | 22C1692-06 | 360175-DW001-1 | N | 2-Hexanone | 20 | UD | 20 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-06 | 360175-DW001-1 | N | Acetone | 100 | UD | 100 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-06 | 360175-DW001-1 | N | 1,4-Dioxane | 100 | UD | 100 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-07 | 360175-DW002-2 | N | 2-Butanone | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-07 | 360175-DW002-2 | N | Acrylonitrile | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-07 | 360175-DW002-2 | N | 1,4-Dioxane | 50 | U | 50 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-07 | 360175-DW002-2 | N | 2-Hexanone | 10 | U | 10 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-07 | 360175-DW002-2 | N | Acetone | 50 | U | 50 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-07 | 360175-DW002-2 | N | t-Butyl alcohol | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22C1692 | 8260D | 22C1692-07 | 360175-DW002-2 | N | Naphthalene | 2 | U | 2 | UJ | CCV%D | UG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-02 | 360175-DP008011 | N | Perfluorododecanoic acid (PFDoA) | 1.8 | U | 1.8 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-02 | 360175-DP008011 | N | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | 1.8 | U | 1.8 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-02 | 360175-DP008011 | N | N-EtFOSAA | 1.8 | U | 1.8 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-02 | 360175-DP008011 | N | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | 1.8 | U | 1.8 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-02 | 360175-DP008011 | N | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | 0.39 | J | 0.39 | J | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-02 | 360175-DP008011 | N | Perfluorotetradecanoic acid (PFTA) | 1.8 | U | 1.8 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-02 | 360175-DP008011 | N | N-MeFOSAA | 1.8 | U | 1.8 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-03 | 360175-DP01009 | N | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | 2.1 | U | 2.1 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-03 | 360175-DP01009 | N | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | 2.1 | U | 2.1 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-03 | 360175-DP01009 | N | Perfluorotetradecanoic acid (PFTA) | 2.1 | U | 2.1 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-03 | 360175-DP01009 | N | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | 2.1 | U | 2.1 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-05 | 360175-DP00909 | N | Perfluorooctanesulfonamide (FOSA) | 1.8 | U | 1.8 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-05 | 360175-DP00909 | N | Perfluorotetradecanoic acid (PFTA) | 1.8 | U | 1.8 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-05 | 360175-DP00909 | N | Perfluorobutanoic acid (PFBA) | 20 | | 20 | J | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-06 | 360175-DP01508 | N | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | 2 | U | 2 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-06 | 360175-DP01508 | N | Perfluorooctanesulfonamide (FOSA) | 2 | U | 2 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-06 | 360175-DP01508 | N | Perfluorobutanoic acid (PFBA) | 11 | | 11 | J | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-06 | 360175-DP01508 | N | Perfluorododecanoic acid (PFDoA) | 2 | U | 2 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-06 | 360175-DP01508 | N | N-EtFOSAA | 2 | U | 2 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-06 | 360175-DP01508 | N | N-MeFOSAA | 2 | U | 2 | UJ | ISL | NG/L |
| 22C1815 | SOP-454 PFAS | 22C1815-06 | 360175-DP01508 | N | Perfluorotetradecanoic acid (PFTA) | 2 | U | | R | ISL | NG/L |
| 22C1819 | TO15 | 22C1819-01 | 360175-GV008005 | N | 1,2,4-Trichlorobenzene | 1.5 | UD | 1.5 | UJ | LCSL | UG/M3 |
| 22C1819 | TO15 | 22C1819-02 | 360175-GV009005D | N | 1,2,4-Trichlorobenzene | 1.5 | UD | 1.5 | UJ | LCSL | UG/M3 |
| 22C1819 | TO15 | 22C1819-03 | 360175-GV009005 | N | 1,2,4-Trichlorobenzene | 1.5 | UD | 1.5 | UJ | LCSL | UG/M3 |
| 22C1819 | TO15 | 22C1819-04 | 360175-GV016005 | N | 1,2,4-Trichlorobenzene | 1.5 | UD | 1.5 | UJ | LCSL | UG/M3 |
| 22E1903 | 8260D | 22E1903-01 | 360175-DP08011 | N | 2-Hexanone | 10 | U | 10 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-01 | 360175-DP08011 | N | Methylene chloride | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-01 | 360175-DP08011 | N | t-Butyl alcohol | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-01 | 360175-DP08011 | N | Naphthalene | 2 | U | 2 | UJ | LCSL | UG/L |
| 22E1903 | 8260D | 22E1903-01 | 360175-DP08011 | N | 2-Butanone | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-02 | 360175-DP01009 | N | 2-Hexanone | 10 | U | 10 | UJ | CCV%D | UG/L |

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IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| Lab SDG | Method | Lab Sample ID | Field Sample ID | Fraction | Parameter | Lab Result | Lab Qualifier | Final Result | Final Qualifier | Val Reason Code | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22E1903 | 8260D | 22E1903-02 | 360175-DP01009 | N | Methylene chloride | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-02 | 360175-DP01009 | N | t-Butyl alcohol | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-02 | 360175-DP01009 | N | Naphthalene | 2 | U | 2 | UJ | LCSL | UG/L |
| 22E1903 | 8260D | 22E1903-02 | 360175-DP01009 | N | 2-Butanone | 2.3 | J | 2.3 | J- | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-03 | 360175-DP015010 | N | Methylene chloride | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-03 | 360175-DP015010 | N | 2-Butanone | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-03 | 360175-DP015010 | N | t-Butyl alcohol | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-03 | 360175-DP015010 | N | Naphthalene | 2 | U | 2 | UJ | LCSL | UG/L |
| 22E1903 | 8260D | 22E1903-03 | 360175-DP015010 | N | 2-Hexanone | 10 | U | 10 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-04 | 360175-DP016012 | N | 2-Hexanone | 10 | U | 10 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-04 | 360175-DP016012 | N | Methylene chloride | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-04 | 360175-DP016012 | N | t-Butyl alcohol | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-04 | 360175-DP016012 | N | 2-Butanone | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-04 | 360175-DP016012 | N | Naphthalene | 2 | U | 2 | UJ | LCSL | UG/L |
| 22E1903 | 8260D | 22E1903-05 | 360175-DP017012 | N | Methylene chloride | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-05 | 360175-DP017012 | N | Naphthalene | 2 | U | 2 | UJ | LCSL | UG/L |
| 22E1903 | 8260D | 22E1903-05 | 360175-DP017012 | N | 2-Butanone | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-05 | 360175-DP017012 | N | t-Butyl alcohol | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-05 | 360175-DP017012 | N | 2-Hexanone | 10 | U | 10 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-06 | 360175-DP01108 | N | Naphthalene | 2 | U | 2 | UJ | LCSL | UG/L |
| 22E1903 | 8260D | 22E1903-06 | 360175-DP01108 | N | 2-Butanone | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-06 | 360175-DP01108 | N | t-Butyl alcohol | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-06 | 360175-DP01108 | N | 2-Hexanone | 10 | U | 10 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-06 | 360175-DP01108 | N | Methylene chloride | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-07 | 360175-DP01206 | N | t-Butyl alcohol | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-07 | 360175-DP01206 | N | 2-Butanone | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-07 | 360175-DP01206 | N | Naphthalene | 2 | U | 2 | UJ | LCSL | UG/L |
| 22E1903 | 8260D | 22E1903-07 | 360175-DP01206 | N | Methylene chloride | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22E1903 | 8260D | 22E1903-07 | 360175-DP01206 | N | 2-Hexanone | 10 | U | 10 | UJ | CCV%D | UG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-01 | 360175-MW003D020 | N | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | 1.7 | U | 1.7 | UJ | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-01 | 360175-MW003D020 | N | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | 1.7 | U | 1.7 | UJ | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-02 | 360175-DP002011 | N | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | 1.8 | U | 1.8 | UJ | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-02 | 360175-DP002011 | N | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | 1.8 | U | 1.8 | UJ | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-03 | 360175-DP004011 | N | Perfluoroundecanoic acid (PFUnA) | 2 | U | 2 | UJ | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-03 | 360175-DP004011 | N | N-MeFOSAA | 2 | U | 2 | UJ | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-03 | 360175-DP004011 | N | N-EtFOSAA | 0.97 | J | 0.97 | J+ | LCSH, ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-03 | 360175-DP004011 | N | Perfluorobutanoic acid (PFBA) | 14 | | 14 | J | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-03 | 360175-DP004011 | N | Perfluorododecanoic acid (PFDoA) | 2 | U | | R | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-03 | 360175-DP004011 | N | Perfluorooctanesulfonamide (FOSA) | 2.2 | | 2.2 | J | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-03 | 360175-DP004011 | N | Perfluorotetradecanoic acid (PFTA) | 2 | U | | R | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-04 | 360175-DP005011 | N | Perfluorododecanoic acid (PFDoA) | 1.7 | U | | R | ISL | NG/L |

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IRVINGTON, NEW YORK

| Lab SDG | Method | Lab Sample ID | Field Sample ID | Fraction | Parameter | Lab Result | Lab Qualifier | Final Result | Final Qualifier | Val Reason Code | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22F0915 | SOP-454 PFAS | 22F0915-04 | 360175-DP005011 | N | N-EtFOSAA | 1.7 | U | 1.7 | UJ | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-04 | 360175-DP005011 | N | Perfluoropentanoic acid (PFPeA) | 7.7 | | 7.7 | J+ | MSH | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-04 | 360175-DP005011 | N | N-MeFOSAA | 1.7 | U | 1.7 | UJ | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-04 | 360175-DP005011 | N | Perfluorooctanoic acid (PFOA) | 16 | | 16 | J+ | MSH | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-04 | 360175-DP005011 | N | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | 1.7 | U | 1.7 | UJ | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-04 | 360175-DP005011 | N | Perfluorobutanoic acid (PFBA) | 9.1 | | 9.1 | J+ | MSH | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-04 | 360175-DP005011 | N | Perfluorotetradecanoic acid (PFTA) | 1.7 | U | | R | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-04 | 360175-DP005011 | N | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | 1.7 | U | 1.7 | UJ | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-04 | 360175-DP005011 | N | Perfluorooctanesulfonamide (FOSA) | 1.7 | U | | R | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-04 | 360175-DP005011 | N | Perfluorooctanesulfonic acid (PFOS) | 29 | | 29 | J+ | MSH | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-04 | 360175-DP005011 | N | Perfluoroundecanoic acid (PFUnA) | 1.7 | U | 1.7 | UJ | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-05 | 360175-DP005011-DUP | N | Perfluorooctanoic acid (PFOA) | 17 | | 17 | J+ | MSH | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-05 | 360175-DP005011-DUP | N | Perfluorooctanesulfonic acid (PFOS) | 34 | | 34 | J+ | MSH | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-05 | 360175-DP005011-DUP | N | Perfluoropentanoic acid (PFPeA) | 8.3 | | 8.3 | J+ | MSH | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-05 | 360175-DP005011-DUP | N | Perfluorododecanoic acid (PFDoA) | 1.8 | U | 1.8 | UJ | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-05 | 360175-DP005011-DUP | N | Perfluorobutanoic acid (PFBA) | 8 | | 8 | J+ | MSH | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-05 | 360175-DP005011-DUP | N | Perfluorotetradecanoic acid (PFTA) | 1.8 | U | | R | ISL | NG/L |
| 22F0915 | SOP-454 PFAS | 22F0915-05 | 360175-DP005011-DUP | N | Perfluorooctanesulfonamide (FOSA) | 1.8 | U | 1.8 | UJ | ISL | NG/L |
| 22F1625 | 8260D | 22F1625-01 | 360175-MW0030020 | N | Acetone | 50 | U | 50 | UJ | CCV%D | UG/L |
| 22F1625 | 8260D | 22F1625-01 | 360175-MW0030020 | N | 2-Hexanone | 10 | U | 10 | UJ | CCV%D | UG/L |
| 22F1625 | 8260D | 22F1625-01 | 360175-MW0030020 | N | Methylene chloride | 0.27 | J | 5 | U | BL2 | UG/L |
| 22F1625 | 8260D | 22F1625-01 | 360175-MW0030020 | N | Naphthalene | 2 | U | 2 | UJ | CCV%D, LCSL | UG/L |
| 22F1625 | 8260D | 22F1625-01 | 360175-MW0030020 | N | 2-Butanone | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22F1625 | 8260D | 22F1625-01 | 360175-MW0030020 | N | 1,4-Dioxane | 50 | U | 50 | UJ | CCV%D | UG/L |
| 22F1625 | 8260D | 22F1625-01 | 360175-MW0030020 | N | t-Butyl alcohol | 20 | U | 20 | UJ | CCV%D, LCSL | UG/L |
| 22F1625 | 8260D | 22F1625-01 | 360175-MW0030020 | N | Acrylonitrile | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22F1625 | 8260D | 22F1625-02 | 360175-MW0030020 Dup | N | 2-Butanone | 20 | U | 20 | UJ | CCV%D | UG/L |
| 22F1625 | 8260D | 22F1625-02 | 360175-MW0030020 Dup | N | Acrylonitrile | 5 | U | 5 | UJ | CCV%D | UG/L |
| 22F1625 | 8260D | 22F1625-02 | 360175-MW0030020 Dup | N | 1,4-Dioxane | 50 | U | 50 | UJ | CCV%D | UG/L |
| 22F1625 | 8260D | 22F1625-02 | 360175-MW0030020 Dup | N | 2-Hexanone | 10 | U | 10 | UJ | CCV%D | UG/L |
| 22F1625 | 8260D | 22F1625-02 | 360175-MW0030020 Dup | N | Acetone | 50 | U | 50 | UJ | CCV%D | UG/L |
| 22F1625 | 8260D | 22F1625-02 | 360175-MW0030020 Dup | N | t-Butyl alcohol | 20 | U | 20 | UJ | CCV%D, LCSL | UG/L |
| 22F1625 | 8260D | 22F1625-02 | 360175-MW0030020 Dup | N | Naphthalene | 2 | U | 2 | UJ | CCV%D, LCSL | UG/L |
| 22F1625 | 8260D | 22F1625-02 | 360175-MW0030020 Dup | N | Methylene chloride | 0.25 | J | 5 | U | BL2 | UG/L |

**ATTACHMENT A**
**SUMMARY OF VALIDATION QC LIMITS FOR SURROGATES, SPIKES, AND DUPLICATES**
**BASED ON THE REGION 2 VALIDATION GUIDELINES**

| PARAMETER | QC TEST | ANALYTE | Soil (%R) | Soil (RPD) | WATER (%R) | Water (RPD) |
|---|---|---|---|---|---|---|
| Volatiles | Surrogate | All Surrogate Compounds | 70 - 130 | | 80 - 120 | |
| | LCS | All Target Compounds | 70 - 130 | | 70 - 130 | |
| | MS/MSD | All Target Compounds | 70 - 130 | 35 | 70 - 130 | 20 |
| | Field Duplicate | All Target Compounds | | 100 | | 50 |
| Per- and Polyfluorinated Alkyl Substances (PFAS) | Surrogate (1) | All Surrogate Compounds | 50 - 150 | | 50 - 150 | |
| | LCS | All Target Compounds | 70 - 130 | | 70 - 130 | |
| | MS/MSD | All Target Compounds | 70 - 130 | 30 | 70 - 130 | 30 |
| | Field Duplicate | All Target Compounds | | 30 | | 30 |
| Semivolatiles | Surrogate | All BN Compounds | 50 - 140 | | 50 - 140 | |
| | | All Acid Compounds | 30 - 140 | | 30 - 140 | |
| | LCS | All BN Compounds | 50 - 140 | | 50 - 140 | |
| | | All Acid Compounds | 30 - 140 | | 30 - 140 | |
| | MS/MSD | All BN Compounds | 50 - 140 | 35 | 50 - 140 | 20 |
| | | All Acid Compounds | 30 - 140 | 35 | 30 - 140 | 20 |
| | Field Duplicate | All Target Compounds | | 100 | | 50 |
| Pesticides | Surrogate | All Surrogate Compounds | 30 - 150 | | 30 - 150 | |
| | LCS | All Target Compounds | Lab Limits | | Lab Limits | |
| | MS/MSD | All Target Compounds | Lab Limits | Lab Limits | Lab Limits | Lab Limits |
| | Field Duplicate | All Target Compounds | | 100 | | 50 |
| PCBs | Surrogate | All Surrogate Compounds | 30 - 150 | | 30 - 150 | |
| | LCS | All Target Analytes | 50 - 150 | | 50 - 150 | |
| | MS/MSD[1] | All Target Analytes | 29 - 135 | 20 | 29 - 135 | 20 |
| | Field Duplicate | All Target Analytes | | 100 | | 50 |
| Inorganics-Metals | LCS | All Target Analytes | 80 - 120 | | 80 - 120 | |
| | MS/MSD | All Target Analytes | 75 -125 | 35 | 75 -125 | 20 |
| | Lab Duplicate[2] | All Target Analytes | | 35 | | 20 |
| | Field Duplicate[2] | All Target Analytes | | 35 | | 20 |

Notes:
(1) For PFAS, surrogate = extracted isotope dilution standard
LCS - Laboratory Control Sample
MS/MSD - Matrix spike/ Matrix Spike Duplicate
RPD = Relative percent difference
%R = percent recovery
QC Limits are based on USEPA Region II Data Validation Guidelines and Project QA/QC Objectives

# DATA USABILITY SUMMARY REPORT
# JANUARY, MARCH, MAY, AND JUNE 2022 SAMPLING EVENTS
# IRVINGTON RUGS AND CLEANERS
# IRVINGTON, NEW YORK

## ATTACHMENT B

# VOCs

**NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD**
**Project:** Irvington Rugs and Cleaners January
**Method:** 8260C
**Laboratory:** Contest **SDG(s):** 22A0721R
**Date:** 3/9/2022
**Reviewer:** Gabrielle Davis

**Review Level** [X] NYSDEC DUSR [ ] USEPA Region II Guideline

1. ☑ **Case Narrative Review and COC/Data Package Completeness** COMMENTS
   Were problems noted? Yes - see attached
   Are Field Sample IDs and Locations assigned correctly? YES NO (circle one)
   Were all the samples on the COC analyzed for the requested analyses? YES NO (circle one)
2. ☑ **Holding time and Sample Collection**
   All samples were analyzed within the 14 day holding time. YES NO (circle one) See attached - subset J, HTG
3. ☑ **QC Blanks**
   Are method blanks free of contamination? YES NO (circle one)

   Are Trip blanks free of contamination? YES NO (circle one) See attached - U, BL2

   Are Rinse blanks free of contamination? YES NO NA (circle one)
4. ☑ **Instrument Tuning – Data Package Narrative Review**
   Did the laboratory narrative identify any results that were not within method criteria? YES NO (circle one)
   If yes, use professional judgment to evaluate data and qualify results if needed
5. ☑ **Instrument Calibration – Data Package Narrative Review**
   Did the laboratory narrative identify compounds that were not within criteria in the initial and/or continuing calibration standards? YES NO (circle one)

   Initial Calibration %RSD = 20% **(30% for 1,1-DCE, chloroform, 1,2-DCP, toluene, ethylbenzene, VC)**
   Initial Avg RRF and Continuing RRF should be ≥ 0.05 and 0.10 for Chloromethane, 1,1-Dichloroethane, Bromoform and 0.30 for Chlorobenzene and 1,1,2,2-Tetrachloroethane

   Continuing Calibration %D = 20%

   Did the laboratory qualify results based on initial or continuing calibration exceedances? YES NO See attached - subsets UJ/J+, CCV%D and ICV%D
   If yes to above, use professional judgment to evaluate data and qualify results if needed
6. ☑ **Internal Standards – Data Package Narrative Review**
   (Area Limits = -50% to +100%, RTs within 30 seconds of daily CCAL standard (or ICAL mid-point if samples follow ICAL)
   Did the laboratory narrative identify any sample internal standards that were not within criteria? YES NO (circle one)

   Did the laboratory qualify results based on internal standard exceedances? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed
7. ☑ **Surrogate Recovery** - Region II limits (water 80-120%, soil 70-130%)

   Were all results within Region II limits? YES NO (circle one) See attached - no quals
8. ☑ **Matrix Spike** - Region II limits (water and soil 70-130%, water RPD 20, soil RPD 35)

   Were MS/MSDs submitted/analyzed? YES NO See attached - subset UJ, MSL

   Were all results within the Region II limits? YES NO NA (circle one)

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9. ☑ **Duplicates** - Region II Limits (water RPD 50, soil RPD 100)

Were Field Duplicates submitted/analyzed? YES NO

Were all results within Region II limits? (soil RPD<100, water RPD<50) YES NO NA

10. ☑ **Laboratory Control Sample Results** - Region II (Water and soil 70-130%) See attached - UJ, LCSL

Were all results were within Region II control limits? YES NO (circle one)

11. ☑ **Reporting Limits:** Were samples analyzed at a dilution? YES NO (circle one)
Subset of samples analyzed at a dilution for tetrachloroethylene - all detections

12. ☑ **Raw Data Review and Calculation Checks**

See attached for calculations

13. ☑ **Electronic Data Review and Edits**
Does the EDD match the Form Is? YES NO (circle one)

14. ☑ **Tables and TIC Review**
**Table 1** (Samples and Analytical Methods)
**Table 2** (Analytical Results)
**Table 3** (Qualification Actions)
Were all tables produced and reviewed? YES NO (circle one)

**Table 4** (TICs) Did lab report TICs? YES NO (circle one)

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**CASE NARRATIVE SUMMARY**

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

Per client, sample -03 percent solids results to be used for sample -04 as these samples are duplicates. Per client, sample -11 to be reported without percent solids data as no sample received. okay

REVISED 02-22-22: Per client request the 8260 results have been revised to report the 8260 TCL plus STARS. okay

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**SW-846 8260D**

**Qualifications:**

**E**

Reported result is estimated. Value reported over verified calibration range.

**Analyte & Samples(s) Qualified:**

**Tetrachloroethylene**

22A0721-01[360175-GW002-14], 22A0721-03[360175-HA001001], 22A0721-04[360175-HA001001D], 22A0721-08[360175-GW002-16]

Dilutions run within calibration range - outside of HT - J, HTG

**H-04**

Initial analysis within holding time. Reanalysis for the required dilution was past holding time.

**Analyte & Samples(s) Qualified:**

**Tetrachloroethylene**

22A0721-02RE1[360175-GW002-13], 22A0721-07RE1[360175-GW002-15], 22A0721-10RE1[WC Drum]

Original results used - no exceedances

**L-02**

Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.

**Analyte & Samples(s) Qualified:**

See attached for LCS review

**Bromomethane**

B301293-BS1, B301293-BSD1, B301294-BS1, B301294-BSD1, B301313-BS1, B301313-BSD1, S068328-CCV1, S068349-CCV1

**Trichlorofluoromethane (Freon 11)**

B301293-BS1, B301293-BSD1

**L-04**

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

**Analyte & Samples(s) Qualified:**

See attached for LCS review

**Methyl Acetate**

22A0721-03[360175-HA001001], 22A0721-04[360175-HA001001D], 22A0721-05[360175-HA002001], 22A0721- 11[WC Drum], B301293-BLK1, B301293-BS1, B301293-BSD1, B301293-MS1, B301293-MSD1

**L-07**

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.

**Analyte & Samples(s) Qualified:**

See attached for LCS review

**1,1,2-Trichloro-1,2,2-trifluoroethan**

B301313-BSD1

**MS-09**

Matrix spike recovery and/or matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a low bias for reported result or non-homogeneous sample aliquots cannot be eliminated.

**Analyte & Samples(s) Qualified:**

**2-Butanone (MEK)**

See attached for MS review

22A0721-03[360175-HA001001], B301293-MS1, B301293-MSD1

**Methyl Acetate**

22A0721-03[360175-HA001001], B301293-MS1, B301293-MSD1

**MS-15**

Matrix spike and matrix spike duplicate recoveries are outside of control limits. Data validation is not affected since results for this compound in this sample are "not detected", and recovery bias is on the high side.

**Analyte & Samples(s) Qualified:**

See attached for MS review

**Trichlorofluoromethane (Freon 11)**

B301293-MS1, B301293-MSD1

**MS-19**

Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.

**Analyte & Samples(s) Qualified:**

See attached for MS review

**Tetrachloroethylene**

22A0721-03[360175-HA001001], B301293-MS1, B301293-MSD1

**MS-22**

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.

**Analyte & Samples(s) Qualified:**

**Bromomethane**

See attached for MS review

B301293-MS1

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**MS-24**

Either matrix spike or matrix spike duplicate is outside of control limits, but the other is within limits. Analysis is in control based on laboratory fortified blank recovery.

**Analyte & Samples(s) Qualified:**

See attached for MS review

**1,4-Dioxane**
B301293-MSD1

**Chloromethane**
B301293-MS1

---

**V-05**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

**Analyte & Samples(s) Qualified:**

**1,2,3-Trichlorobenzene**
B301313-BLK1, B301313-BS1, B301313-BSD1, S068349-CCV1 Lab QC - no quals

**1,2-Dibromo-3-chloropropane (DB**
22A0721-01[360175-GW002-14], 22A0721-02[360175-GW002-13], 22A0721-07[360175-GW002-15], 22A0721-08[360175-GW002-16], 22A0721-09[TB 20220112], UJ, CCV%D
22A0721-10[WC Drum], B301294-BLK1, B301294-BS1, B301294-BSD1, S068328-CCV1

**2-Butanone (MEK)**
22A0721-03[360175-HA001001], 22A0721-04[360175-HA001001D], 22A0721-05[360175-HA002001], 22A0721- 11[WC Drum], B301293-BLK1, B301293-BS1, UJ, CCV%D
B301293-BSD1, B301293-MS1, B301293-MSD1, S068293-CCV1

**Benzene**
22A0721-03[360175-HA001001], 22A0721-04[360175-HA001001D], 22A0721-05[360175-HA002001], 22A0721- 11[WC Drum], B298959-BLK1, B298959-BS1, UJ, CCV%D
B298959-BSD1, B298959-MS1, B298959-MSD1, B301293-BLK1, B301293-BS1, B301293-BSD1, B301293-MS1, B301293-MSD1, S067381-CCV1, S068293-CCV1

**Bromomethane**
22A0721-06[360175-HA003001], B301315-BLK1, B301315-BS1, B301315-BSD1, S068298-CCV1 UJ, CCV%D

**Chloromethane**
22A0721-01[360175-GW002-14], 22A0721-02[360175-GW002-13], 22A0721-06[360175-HA003001], 22A0721-07[360175-GW002-15], 22A0721-08[360175-GW002-16], UJ, CCV%D
22A0721-09[TB20220112], 22A0721-10[WC Drum], B301294-BLK1, B301294-BS1, B301294-BSD1, B301313-BLK1, B301313-BS1, B301313-BSD1, B301315-BLK1,
B301315-BS1, B301315-BSD1, S068298-CCV1, S068328-CCV1, S068349-CCV1

**Methyl Acetate**
22A0721-03[360175-HA001001], 22A0721-04[360175-HA001001D], 22A0721-05[360175-HA002001], 22A0721- 11[WC Drum], B301293-BLK1, B301293-BS1, UJ, CCV%D
B301293-BSD1, B301293-MS1, B301293-MSD1, S068293-CCV1

**Naphthalene**
22A0721-01[360175-GW002-14], 22A0721-02[360175-GW002-13], 22A0721-07[360175-GW002-15], 22A0721-08[360175-GW002-16], 22A0721-09[TB 20220112], UJ, CCV%D
22A0721-10[WC Drum], B298943-BLK1, B298943-BS1, B298943-BSD1, S067413-CCV1, S068349-CCV1

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**V-06**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

**Analyte & Samples(s) Qualified:**

**Methylene Chloride**
22A0721-01[360175-GW002-14], B301294-BS1, B301294-BSD1, S068328-CCV1 J+, CCV%D

**Tetrachloroethylene**
22A0721-01[360175-GW002-14], 22A0721-02[360175-GW002-13], 22A0721-07[360175-GW002-15], 22A0721-08[360175-GW002-16], 22A0721-10[WC Drum], Samples 2,7 J+, CCV%D Others RA results used - no quals
B301294-BS1, B301294-BSD1, S068328-CCV1

---

**V-20**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

**Analyte & Samples(s) Qualified:**

**1,1,2-Trichloro-1,2,2-trifluoroethan**
B301313-BS1, B301313-BSD1, S068349-CCV1

**1,1-Dichloroethylene**
B301313-BS1, B301313-BSD1, S068349-CCV1

**1,2-Dichloropropane**
B301294-BS1, B301294-BSD1, S068328-CCV1 All lab QC - no quals

**2-Hexanone (MBK)**
B301294-BS1, B301294-BSD1, S068328-CCV1

**4-Methyl-2-pentanone (MIBK)**
B301294-BS1, B301294-BSD1, S068328-CCV1

**Bromochloromethane**
B301313-BS1, B301313-BSD1, B301315-BS1, B301315-BSD1, S068298-CCV1, S068349-CCV1

**Bromomethane**
B301293-BS1, B301293-BSD1, B301293-MS1, B301293-MSD1, B301294-BS1, B301294-BSD1, B301313-BS1, B301313-BSD1, S068293-CCV1, S068328-CCV1,
S068349-CCV1

**Trichlorofluoromethane (Freon 11)**
B301293-BS1, B301293-BSD1, B301293-MS1, B301293-MSD1, S068293-CCV1

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**V-34**

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

**Analyte & Samples(s) Qualified:**

**Bromomethane**

22A0721-01[360175-GW002-14], 22A0721-02[360175-GW002-13], 22A0721-03[360175-HA001001], 22A0721-04[360175-HA001001D], 22A0721-05[360175-HA002001], 22A0721-07[360175-GW002-15], 22A0721-08[360175-GW002-16], 22A0721-09[TB 20220112], 22A0721-10[WC Drum], 22A0721-11[WC Drum], B301293-BLK1, B301293-BS1, B301293-BSD1, B301293-MS1, B301293-MSD1, B301294-BLK1, B301294-BS1, B301294-BSD1, B301313-BLK1, B301313-BS1, B301313-BSD1, S068293-CCV1, S068328-CCV1, S068349-CCV1

UJ, ICV%D

**Chloromethane**

22A0721-01[360175-GW002-14], 22A0721-02[360175-GW002-13], 22A0721-07[360175-GW002-15], 22A0721-08[360175-GW002-16], 22A0721-09[TB 20220112], 22A0721-10[WC Drum], B301294-BLK1, B301294-BS1, B301294-BSD1, B301313-BLK1, B301313-BS1, B301313-BSD1, S068328-CCV1, S068349-CCV1

UJ, ICV%D

**V-35**

Initial calibration verification (ICV) did not meet method specifications and was biased on the high side for this compound. Reported result is estimated.

**Analyte & Samples(s) Qualified:**

**2-Hexanone (MBK)**

B301293-BS1, B301293-BSD1, S068293-CCV1

Lab QC - no quals

**Acetone**

B301293-BS1, B301293-BSD1, S068293-CCV1

**Z-01**

Initial analysis within holding time. Reanalysis was past holding time.

okay

**Analyte & Samples(s) Qualified:**

22A0721-02RE1[360175-GW002-13], 22A0721-07RE1[360175-GW002-15], 22A0721-10RE1[WC Drum]

**Z-01a**

Reported value is possible carryover from a previous high level sample.

**Analyte & Samples(s) Qualified:**

okay - reran and those results confirm detections

**Tetrachloroethylene**

22A0721-02[360175-GW002-13], 22A0721-10[WC Drum]

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The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Technical Representative

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NYDEC_Wood - Portland, ME
511 Congress Street, Sutie 200
Portland, ME 04101
ATTN: Chuck R. Staples

REPORT DATE: 2/22/2022

PURCHASE ORDER NUMBER: 142890

PROJECT NUMBER: 3616216144.02

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 22A0721

The results of analyses performed on the following samples submitted to Con-Test, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: Irvington, NY

| FIELD SAMPLE # | LAB ID: | MATRIX | SAMPLE DESCRIPTION | TEST | SUB LAB |
|---|---|---|---|---|---|
| 360175-GW002-14 ✓ | 22A0721-01 | Ground Water | | SW-846 8260D | |
| 360175-GW002-13 ✓ | 22A0721-02 | Ground Water | | SW-846 8260D | |
| 360175-HA001001 ✓ | 22A0721-03 | Soil | | SM 2540G | |
| | | | | SW-846 8260D | |
| 360175-HA001001D ✓ | 22A0721-04 | Soil | | SM 2540G | |
| | | | | SW-846 8260D | |
| 360175-HA002001 ✓ | 22A0721-05 | Soil | | SM 2540G | |
| | | | | SW-846 8260D | |
| 360175-HA003001 ✓ | 22A0721-06 | Soil | | SM 2540G | |
| | | | | SW-846 8260D | |
| 360175-GW002-15 ✓ | 22A0721-07 | Ground Water | | SW-846 8260D | |
| 360175-GW002-16 ✓ | 22A0721-08 | Ground Water | | SW-846 8260D | |
| TB20220112 ✓ | 22A0721-09 | Ground Water | | SW-846 8260D | |
| WC Drum | 22A0721-10 | Ground Water | | SW-846 8260D | |
| WC Drum | 22A0721-11 | Soil | | SW-846 8260D | |

No validation for WC samples

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Project Location: Irvington, NY | Sample Description: | Work Order: 22A0721

Date Received: 1/13/2022

**Field Sample #: TB20220112** | Sampled: 1/12/2022 08:00

**Sample ID: 22A0721-09**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | DL | Units | DF | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Styrene | ND | 1.0 | 0.11 | µg/L | 1 | | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | EEH |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.13 | µg/L | 1 | | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | EEH |
| Tetrachloroethylene | ND | 1.0 | 0.19 | µg/L | 1 | | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | EEH |
| Toluene Sample 1 U @ RL, BL2 | 0.51 | 1.0 | 0.11 | µg/L | 1 | J | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | MFF |
| 1,2,3-Trichlorobenzene | ND | 5.0 | 0.30 | µg/L | 1 | | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | EEH |
| 1,2,4-Trichlorobenzene | ND | 1.0 | 0.25 | µg/L | 1 | | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | EEH |
| 1,1,1-Trichloroethane | ND | 1.0 | 0.17 | µg/L | 1 | | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | EEH |
| 1,1,2-Trichloroethane | ND | 1.0 | 0.18 | µg/L | 1 | | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | EEH |
| Trichloroethylene | ND | 1.0 | 0.19 | µg/L | 1 | | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | EEH |
| Trichlorofluoromethane (Freon 11) | ND | 2.0 | 0.18 | µg/L | 1 | | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | EEH |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | ND | 1.0 | 0.23 | µg/L | 1 | | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | EEH |
| 1,2,4-Trimethylbenzene | ND | 1.0 | 0.10 | µg/L | 1 | | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | MFF |
| 1,3,5-Trimethylbenzene | ND | 1.0 | 0.10 | µg/L | 1 | | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | MFF |
| Vinyl Chloride | ND | 2.0 | 0.21 | µg/L | 1 | | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | EEH |
| m+p Xylene Samples ND - no quals | 0.27 | 2.0 | 0.18 | µg/L | 1 | J | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | MFF |
| o-Xylene | ND | 1.0 | 0.090 | µg/L | 1 | | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | MFF |
| Xylenes (total) | 0.0 | | | µg/L | 1 | | SW-846 8260D | 1/14/22 | 1/14/22 14:17 | EEH |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 83.1 | 70-130 | | 1/14/22 14:17 |
| 1,2-Dichloroethane-d4 | 83.1 | 70-130 | | 1/14/22 14:17 |
| Toluene-d8 | 97.4 | 70-130 | | 1/14/22 14:17 |
| Toluene-d8 | 97.4 | 70-130 | | 1/14/22 14:17 |
| 4-Bromofluorobenzene | 100 | 70-130 | | 1/14/22 14:17 |
| 4-Bromofluorobenzene | 100 | 70-130 | | 1/14/22 14:17 |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B301293 - SW-846 5035** | | | | | | | | | | | | |
| **LCS Dup (B301293-BSD1)** | | | | Prepared & Analyzed: 01/14/22 | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 0.0185 | 0.0010 | 0.00052 | mg/Kg wet | 0.0200 | | 92.5 | | 70-130 | 1.93 | 25 | |
| Tetrachloroethylene | 0.0217 | 0.0020 | 0.00066 | mg/Kg wet | 0.0200 | | 109 | | 70-130 | 0.739 | 25 | |
| Toluene | 0.0196 | 0.0020 | 0.00052 | mg/Kg wet | 0.0200 | | 98.1 | | 70-130 | 1.64 | 25 | |
| 1,2,3-Trichlorobenzene | 0.0198 | 0.0020 | 0.00054 | mg/Kg wet | 0.0200 | | 99.2 | | 70-130 | 2.49 | 25 | |
| 1,2,4-Trichlorobenzene | 0.0187 | 0.0020 | 0.00048 | mg/Kg wet | 0.0200 | | 93.6 | | 70-130 | 0.957 | 25 | |
| 1,1,1-Trichloroethane | 0.0212 | 0.0020 | 0.00080 | mg/Kg wet | 0.0200 | | 106 | | 70-130 | 2.48 | 25 | |
| 1,1,2-Trichloroethane | 0.0199 | 0.0020 | 0.00040 | mg/Kg wet | 0.0200 | | 99.5 | | 70-130 | 0.605 | 25 | |
| Trichloroethylene | 0.0196 | 0.0020 | 0.00066 | mg/Kg wet | 0.0200 | | 97.8 | | 70-130 | 1.96 | 25 | |
| **Trichlorofluoromethane (Freon 11)** | 0.0299 | 0.010 | 0.00048 | mg/Kg wet | 0.0200 | | **150** | * | 70-130 | 4.30 | 25 | L-02, V-20 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 0.0231 | 0.010 | 0.00066 | mg/Kg wet | 0.0200 | | 116 | | 70-130 | 4.70 | 25 | |
| Vinyl Chloride | 0.0190 | 0.010 | 0.00064 | mg/Kg wet | 0.0200 | | 95.1 | | 40-130 | 3.21 | 25 | † |
| m+p Xylene | 0.0445 | 0.0040 | 0.0013 | mg/Kg wet | 0.0400 | | 111 | | 70-130 | 2.46 | 25 | |
| o-Xylene | 0.0222 | 0.0020 | 0.00043 | mg/Kg wet | 0.0200 | | 111 | | 70-130 | 2.74 | 25 | |
| Surrogate: 1,2-Dichloroethane-d4 | *0.0524* | | | mg/Kg wet | 0.0500 | | 105 | | 70-130 | | | |
| Surrogate: Toluene-d8 | *0.0494* | | | mg/Kg wet | 0.0500 | | 98.9 | | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | *0.0533* | | | mg/Kg wet | 0.0500 | | 107 | | 70-130 | | | |
| **Matrix Spike (B301293-MS1)** | | | | **Source: 22A0721-03** Prepared & Analyzed: 01/14/22 | | | | | | | | |
| Acetone | 0.0796 | 0.052 | 0.0048 | mg/Kg dry | 0.105 | ND | 76.0 | | 70-130 | | | |
| Benzene | 0.00780 | 0.0010 | 0.00026 | mg/Kg dry | 0.0105 | ND | 74.5 | | 70-130 | | | V-05 |
| Bromochloromethane | 0.00768 | 0.0010 | 0.00044 | mg/Kg dry | 0.0105 | ND | 73.4 | | 70-130 | | | |
| Bromodichloromethane | 0.0112 | 0.0010 | 0.00026 | mg/Kg dry | 0.0105 | ND | 107 | | 70-130 | | | |
| Bromoform | 0.0116 | 0.0010 | 0.00036 | mg/Kg dry | 0.0105 | ND | 111 | | 70-130 | | | |
| **Bromomethane** | 0.00658 | 0.0052 | 0.00088 | mg/Kg dry | 0.0105 | ND | **62.8** | * | 70-130 | | | UJ, MSL MS-22, V-20, V-34 |
| **2-Butanone (MEK)** | 0.0689 | 0.021 | 0.0030 | mg/Kg dry | 0.105 | ND | **65.8** | * | 70-130 | | | UJ, MSL MS-09, V-05 |
| Carbon Disulfide | 0.00920 | 0.0052 | 0.0037 | mg/Kg dry | 0.0105 | ND | 87.9 | | 70-130 | | | |
| Carbon Tetrachloride | 0.0112 | 0.0010 | 0.00044 | mg/Kg dry | 0.0105 | ND | 107 | | 70-130 | | | |
| Chlorobenzene | 0.0103 | 0.0010 | 0.00036 | mg/Kg dry | 0.0105 | ND | 98.4 | | 70-130 | | | |
| Chlorodibromomethane | 0.0117 | 0.00052 | 0.00036 | mg/Kg dry | 0.0105 | ND | 111 | | 70-130 | | | |
| Chloroethane | 0.0104 | 0.010 | 0.00066 | mg/Kg dry | 0.0105 | ND | 98.9 | | 70-130 | | | J |
| Chloroform | 0.00958 | 0.0021 | 0.00036 | mg/Kg dry | 0.0105 | ND | 91.5 | | 70-130 | | | |
| **Chloromethane** | 0.00708 | 0.0052 | 0.00056 | mg/Kg dry | 0.0105 | ND | **67.6** | * | 70-130 | | | UJ, MSL MS-24 |
| **Cyclohexane** | 0.00646 | 0.0052 | 0.0021 | mg/Kg dry | 0.0105 | ND | **61.7** | * | 70-130 | | | Not reported for this sample - no qual |
| 1,2-Dibromo-3-chloropropane (DBCP) | 0.00998 | 0.0010 | 0.00044 | mg/Kg dry | 0.0105 | ND | 95.3 | | 70-130 | | | |
| 1,2-Dibromoethane (EDB) | 0.0108 | 0.00052 | 0.00036 | mg/Kg dry | 0.0105 | ND | 103 | | 70-130 | | | |
| 1,2-Dichlorobenzene | 0.0113 | 0.0010 | 0.00026 | mg/Kg dry | 0.0105 | ND | 108 | | 70-130 | | | |
| 1,3-Dichlorobenzene | 0.0110 | 0.0010 | 0.00026 | mg/Kg dry | 0.0105 | ND | 105 | | 70-130 | | | |
| 1,4-Dichlorobenzene | 0.0101 | 0.0010 | 0.00026 | mg/Kg dry | 0.0105 | ND | 96.5 | | 70-130 | | | |
| Dichlorodifluoromethane (Freon 12) | 0.0127 | 0.010 | 0.00056 | mg/Kg dry | 0.0105 | ND | 122 | | 70-130 | | | |

Qualified for sample and FD

GTD 3/9/2022

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B301293 - SW-846 5035** | | | | | | | | | | | | |
| **Matrix Spike (B301293-MS1)** | | **Source: 22A0721-03** | | | Prepared & Analyzed: 01/14/22 | | | | | | | |
| 1,1-Dichloroethane | 0.00823 | 0.0010 | 0.0003 | mg/Kg dry | 0.0105 | ND | 78.6 | | 70-130 | | | |
| 1,2-Dichloroethane | 0.0119 | 0.0010 | 0.0003 | mg/Kg dry | 0.0105 | ND | 114 | | 70-130 | | | |
| 1,1-Dichloroethylene | 0.00941 | 0.0021 | 0.0003 | mg/Kg dry | 0.0105 | ND | 89.9 | | 70-130 | | | |
| cis-1,2-Dichloroethylene | 0.00984 | 0.0010 | 0.0002 | mg/Kg dry | 0.0105 | 0.000534 | 88.9 | | 70-130 | | | |
| trans-1,2-Dichloroethylene | 0.00846 | 0.0010 | 0.0003 | mg/Kg dry | 0.0105 | ND | 80.8 | | 70-130 | | | |
| 1,2-Dichloropropane | 0.00867 | 0.0010 | 0.0003 | mg/Kg dry | 0.0105 | ND | 82.8 | | 70-130 | | | |
| cis-1,3-Dichloropropene | 0.00886 | 0.00052 | 0.0002 | mg/Kg dry | 0.0105 | ND | 84.6 | | 70-130 | | | |
| trans-1,3-Dichloropropene | 0.00935 | 0.00052 | 0.0002 | mg/Kg dry | 0.0105 | ND | 89.3 | | 70-130 | | | |
| 1,4-Dioxane | 0.0758 | 0.052 | 0.019 | mg/Kg dry | 0.105 | ND | 72.4 | | 70-130 | | | |
| Ethylbenzene | 0.0108 | 0.0010 | 0.0002 | mg/Kg dry | 0.0105 | ND | 103 | | 70-130 | | | |
| 2-Hexanone (MBK) | 0.0908 | 0.010 | 0.0030 | mg/Kg dry | 0.105 | ND | 86.7 | | 70-130 | | | |
| Isopropylbenzene (Cumene) | 0.0114 | 0.0010 | 0.0003 | mg/Kg dry | 0.0105 | ND | 109 | | 70-130 | | | |
| **Methyl Acetate** | 0.00646 | 0.0010 | 0.0007 | mg/Kg dry | 0.0105 | ND | **61.7** | * | 70-130 | | | L-04, MS-09, V-05 |
| Methyl tert-Butyl Ether (MTBE) | 0.0106 | 0.0021 | 0.0001 | mg/Kg dry | 0.0105 | ND | 101 | | 70-130 | | | |
| Methyl Cyclohexane | 0.0111 | 0.0010 | 0.0003 | mg/Kg dry | 0.0105 | ND | 106 | | 70-130 | | | |
| Methylene Chloride | 0.00748 | 0.010 | 0.0007 | mg/Kg dry | 0.0105 | ND | 71.4 | | 70-130 | | | J |
| 4-Methyl-2-pentanone (MIBK) | 0.0967 | 0.010 | 0.0022 | mg/Kg dry | 0.105 | ND | 92.4 | | 70-130 | | | |
| Styrene | 0.0111 | 0.0010 | 0.0002 | mg/Kg dry | 0.0105 | ND | 106 | | 70-130 | | | |
| 1,1,2,2-Tetrachloroethane | 0.00984 | 0.00052 | 0.0002 | mg/Kg dry | 0.0105 | ND | 94.0 | | 70-130 | | | |
| **Tetrachloroethylene** | 0.187 | 0.0010 | 0.0003 | mg/Kg dry | 0.0105 | 0.378 | **-1830** | * | 70-130 | | | MS-19 |
| Toluene | 0.0101 | 0.0010 | 0.0002 | mg/Kg dry | 0.0105 | ND | 96.8 | | 70-130 | | | |
| 1,2,3-Trichlorobenzene | 0.0115 | 0.0010 | 0.0002 | mg/Kg dry | 0.0105 | ND | 110 | | 70-130 | | | |
| 1,2,4-Trichlorobenzene | 0.0115 | 0.0010 | 0.0002 | mg/Kg dry | 0.0105 | ND | 110 | | 70-130 | | | |
| 1,1,1-Trichloroethane | 0.0110 | 0.0010 | 0.0004 | mg/Kg dry | 0.0105 | ND | 105 | | 70-130 | | | |
| 1,1,2-Trichloroethane | 0.0110 | 0.0010 | 0.0002 | mg/Kg dry | 0.0105 | ND | 105 | | 70-130 | | | |
| Trichloroethylene | 0.0110 | 0.0010 | 0.0003 | mg/Kg dry | 0.0105 | 0.00134 | 92.1 | | 70-130 | | | |
| **Trichlorofluoromethane (Freon 11)** | 0.0150 | 0.0052 | 0.0002 | mg/Kg dry | 0.0105 | ND | **143** | * | 70-130 | | | MS-15, V-20 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 0.0125 | 0.0052 | 0.0003 | mg/Kg dry | 0.0105 | ND | 120 | | 70-130 | | | |
| Vinyl Chloride | 0.00914 | 0.0052 | 0.0003 | mg/Kg dry | 0.0105 | ND | 87.3 | | 70-130 | | | |
| m+p Xylene | 0.0226 | 0.0021 | 0.0006 | mg/Kg dry | 0.0209 | ND | 108 | | 70-130 | | | |
| o-Xylene | 0.0116 | 0.0010 | 0.0002 | mg/Kg dry | 0.0105 | ND | 110 | | 70-130 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | *0.0281* | | | mg/Kg dry | 0.0262 | | 107 | | 70-130 | | | |
| Surrogate: Toluene-d8 | *0.0268* | | | mg/Kg dry | 0.0262 | | 102 | | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | *0.0281* | | | mg/Kg dry | 0.0262 | | 107 | | 70-130 | | | |
| **Matrix Spike Dup (B301293-MSD1)** | | **Source: 22A0721-03** | | | Prepared & Analyzed: 01/14/22 | | | | | | | |
| Acetone | 0.0869 | 0.054 | 0.0050 | mg/Kg dry | 0.109 | ND | 79.9 | | 70-130 | 8.78 | 30 | |
| Benzene | 0.00856 | 0.0011 | 0.0003 | mg/Kg dry | 0.0109 | ND | 78.7 | | 70-130 | 9.23 | 30 | V-05 |
| Bromochloromethane | 0.00845 | 0.0011 | 0.0004 | mg/Kg dry | 0.0109 | ND | 77.7 | | 70-130 | 9.44 | 30 | |
| Bromodichloromethane | 0.0117 | 0.0011 | 0.0002 | mg/Kg dry | 0.0109 | ND | 108 | | 70-130 | 4.78 | 30 | |
| Bromoform | 0.0122 | 0.0011 | 0.0003 | mg/Kg dry | 0.0109 | ND | 112 | | 70-130 | 4.74 | 30 | |
| Bromomethane | 0.00766 | 0.0054 | 0.0008 | mg/Kg dry | 0.0109 | ND | 70.5 | | 70-130 | 15.3 | 30 | V-20, V-34 |
| **2-Butanone (MEK)** | 0.0750 | 0.022 | 0.0031 | mg/Kg dry | 0.109 | ND | **69.0** | * | 70-130 | 8.47 | 30 | MS-09, V-05 |
| Carbon Disulfide | 0.0101 | 0.0054 | 0.0038 | mg/Kg dry | 0.0109 | ND | 92.8 | | 70-130 | 9.18 | 30 | |
| Carbon Tetrachloride | 0.0122 | 0.0011 | 0.0004 | mg/Kg dry | 0.0109 | ND | 112 | | 70-130 | 8.78 | 30 | |
| Chlorobenzene | 0.0108 | 0.0011 | 0.0003 | mg/Kg dry | 0.0109 | ND | 99.5 | | 70-130 | 4.87 | 30 | |
| Chlorodibromomethane | 0.0117 | 0.00054 | 0.0003 | mg/Kg dry | 0.0109 | ND | 108 | | 70-130 | 0.376 | 30 | |

Qualified for sample and FD

UJ, MSL

Sample >4x spike- no qual

High bias, sample ND - no qual

<35

Already qual'd UJ, MSL

GTD 3/9/2022

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| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B301293 - SW-846 5035** | | | | | | | | | | | | |
| **Matrix Spike Dup (B301293-MSD1)** | | **Source: 22A0721-03** | | | Prepared & Analyzed: 01/14/22 | | | | | | | |
| Chloroethane | 0.0116 | 0.011 | 0.00066 | mg/Kg dry | 0.0109 | ND | 107 | | 70-130 | 11.2 | 30 | |
| Chloroform | 0.0103 | 0.0022 | 0.00036 | mg/Kg dry | 0.0109 | ND | 95.2 | | 70-130 | 7.72 | 30 | |
| Chloromethane | 0.00781 | 0.0054 | 0.00056 | mg/Kg dry | 0.0109 | ND | 71.8 | | 70-130 | 9.78 | 30 | |
| **Cyclohexane** | 0.00731 | 0.0054 | 0.0022 | mg/Kg dry | 0.0109 | ND | **67.2** | * | 70-130 | 12.3 | 30 | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 0.0105 | 0.0011 | 0.00046 | mg/Kg dry | 0.0109 | ND | 96.4 | | 70-130 | 4.90 | 30 | |
| 1,2-Dibromoethane (EDB) | 0.0108 | 0.00054 | 0.00036 | mg/Kg dry | 0.0109 | ND | 99.2 | | 70-130 | 0.0952 | 30 | |
| 1,2-Dichlorobenzene | 0.0116 | 0.0011 | 0.00026 | mg/Kg dry | 0.0109 | ND | 107 | | 70-130 | 3.29 | 30 | |
| 1,3-Dichlorobenzene | 0.0115 | 0.0011 | 0.00025 | mg/Kg dry | 0.0109 | ND | 106 | | 70-130 | 4.70 | 30 | |
| 1,4-Dichlorobenzene | 0.0108 | 0.0011 | 0.00026 | mg/Kg dry | 0.0109 | ND | 99.6 | | 70-130 | 6.92 | 30 | |
| Dichlorodifluoromethane (Freon 12) | 0.0137 | 0.011 | 0.00056 | mg/Kg dry | 0.0109 | ND | 126 | | 70-130 | 7.38 | 30 | |
| 1,1-Dichloroethane | 0.00898 | 0.0011 | 0.00036 | mg/Kg dry | 0.0109 | ND | 82.6 | | 70-130 | 8.72 | 30 | |
| 1,2-Dichloroethane | 0.0126 | 0.0011 | 0.00036 | mg/Kg dry | 0.0109 | ND | 116 | | 70-130 | 5.58 | 30 | |
| 1,1-Dichloroethylene | 0.0102 | 0.0022 | 0.00036 | mg/Kg dry | 0.0109 | ND | 93.8 | | 70-130 | 8.00 | 30 | |
| cis-1,2-Dichloroethylene | 0.0103 | 0.0011 | 0.00036 | mg/Kg dry | 0.0109 | 0.000534 | 90.0 | | 70-130 | 4.71 | 30 | |
| trans-1,2-Dichloroethylene | 0.00937 | 0.0011 | 0.00036 | mg/Kg dry | 0.0109 | ND | 86.2 | | 70-130 | 10.2 | 30 | |
| 1,2-Dichloropropane | 0.00902 | 0.0011 | 0.00036 | mg/Kg dry | 0.0109 | ND | 83.0 | | 70-130 | 4.00 | 30 | |
| cis-1,3-Dichloropropene | 0.00957 | 0.00054 | 0.00026 | mg/Kg dry | 0.0109 | ND | 88.0 | | 70-130 | 7.69 | 30 | |
| trans-1,3-Dichloropropene | 0.00945 | 0.00054 | 0.00026 | mg/Kg dry | 0.0109 | ND | 86.9 | | 70-130 | 1.03 | 30 | |
| **1,4-Dioxane** | 0.0756 | 0.054 | 0.019 | mg/Kg dry | 0.109 | ND | **69.6** | * | 70-130 | 0.231 | 30 | MS-24 |
| Ethylbenzene | 0.0115 | 0.0011 | 0.00026 | mg/Kg dry | 0.0109 | ND | 106 | | 70-130 | 6.43 | 30 | |
| 2-Hexanone (MBK) | 0.0948 | 0.011 | 0.0031 | mg/Kg dry | 0.109 | ND | 87.2 | | 70-130 | 4.34 | 30 | |
| Isopropylbenzene (Cumene) | 0.0120 | 0.0011 | 0.00036 | mg/Kg dry | 0.0109 | ND | 110 | | 70-130 | 4.85 | 30 | |
| **Methyl Acetate** | 0.00701 | 0.0011 | 0.00086 | mg/Kg dry | 0.0109 | ND | **64.5** | * | 70-130 | 8.19 | 30 | L-04, MS-09, V-05 |
| Methyl tert-Butyl Ether (MTBE) | 0.0113 | 0.0022 | 0.00026 | mg/Kg dry | 0.0109 | ND | 104 | | 70-130 | 7.26 | 30 | |
| Methyl Cyclohexane | 0.0113 | 0.0011 | 0.00046 | mg/Kg dry | 0.0109 | ND | 104 | | 70-130 | 1.95 | 30 | |
| Methylene Chloride | 0.00803 | 0.011 | 0.00086 | mg/Kg dry | 0.0109 | ND | 73.9 | | 70-130 | 7.20 | 30 | J |
| 4-Methyl-2-pentanone (MIBK) | 0.100 | 0.011 | 0.0023 | mg/Kg dry | 0.109 | ND | 92.2 | | 70-130 | 3.58 | 30 | |
| Styrene | 0.0114 | 0.0011 | 0.00026 | mg/Kg dry | 0.0109 | ND | 105 | | 70-130 | 3.09 | 30 | |
| 1,1,2,2-Tetrachloroethane | 0.0101 | 0.00054 | 0.00026 | mg/Kg dry | 0.0109 | ND | 93.2 | | 70-130 | 2.90 | 30 | |
| **Tetrachloroethylene** | 0.203 | 0.0011 | 0.00036 | mg/Kg dry | 0.0109 | 0.378 | **-1620** | * | 70-130 | 8.04 | 30 | MS-19 |
| Toluene | 0.0111 | 0.0011 | 0.00026 | mg/Kg dry | 0.0109 | ND | 102 | | 70-130 | 9.08 | 30 | |
| 1,2,3-Trichlorobenzene | 0.0109 | 0.0011 | 0.00026 | mg/Kg dry | 0.0109 | ND | 101 | | 70-130 | 5.08 | 30 | |
| 1,2,4-Trichlorobenzene | 0.0112 | 0.0011 | 0.00026 | mg/Kg dry | 0.0109 | ND | 103 | | 70-130 | 2.70 | 30 | |
| 1,1,1-Trichloroethane | 0.0119 | 0.0011 | 0.00046 | mg/Kg dry | 0.0109 | ND | 109 | | 70-130 | 8.15 | 30 | |
| 1,1,2-Trichloroethane | 0.0109 | 0.0011 | 0.00026 | mg/Kg dry | 0.0109 | ND | 100 | | 70-130 | 0.922 | 30 | |
| Trichloroethylene | 0.0119 | 0.0011 | 0.00036 | mg/Kg dry | 0.0109 | 0.00134 | 97.4 | | 70-130 | 8.32 | 30 | |
| **Trichlorofluoromethane (Freon 11)** | 0.0165 | 0.0054 | 0.00026 | mg/Kg dry | 0.0109 | ND | **152** | * | 70-130 | 9.52 | 30 | MS-15, V-20 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 0.0137 | 0.0054 | 0.00036 | mg/Kg dry | 0.0109 | ND | 126 | | 70-130 | 9.04 | 30 | |
| Vinyl Chloride | 0.0104 | 0.0054 | 0.00036 | mg/Kg dry | 0.0109 | ND | 96.1 | | 70-130 | 13.3 | 30 | |
| m+p Xylene | 0.0241 | 0.0022 | 0.00076 | mg/Kg dry | 0.0217 | ND | 111 | | 70-130 | 6.41 | 30 | |
| o-Xylene | 0.0122 | 0.0011 | 0.00026 | mg/Kg dry | 0.0109 | ND | 112 | | 70-130 | 5.37 | 30 | |
| Surrogate: 1,2-Dichloroethane-d4 | *0.0284* | | | mg/Kg dry | 0.0272 | | 104 | | 70-130 | | | |
| Surrogate: Toluene-d8 | *0.0272* | | | mg/Kg dry | 0.0272 | | 100 | | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | *0.0288* | | | mg/Kg dry | 0.0272 | | 106 | | 70-130 | | | |

Qualified for sample and FD

Not reported for this sample - no qual

UJ, MSL

Already qual'd UJ, MSL

Sample >4x spike - no qual

High bias, sample ND - no qual

GTD 3/9/2022

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| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B301293 - SW-846 5035** | | | | | | | | | | | | | |
| **LCS (B301293-BS1)** Associated with samples 3, 4, 5 | | | | | Prepared & Analyzed: 01/14/22 | | | | | | | | |
| **Bromomethane** | 0.0380 | 0.010 | 0.0016 | mg/Kg wet | 0.0200 | | **190** | * | 40-130 | High bias, samples ND - no quals | | L-02, V-20, V-34 | † |
| 2-Butanone (MEK) | 0.149 | 0.040 | 0.0057 | mg/Kg wet | 0.200 | | 74.7 | | 70-160 | | | V-05 | † |
| Carbon Disulfide | 0.157 | 0.010 | 0.0070 | mg/Kg wet | 0.200 | | 78.3 | | 70-130 | | | | |
| Carbon Tetrachloride | 0.0213 | 0.0020 | 0.0008 | mg/Kg wet | 0.0200 | | 106 | | 70-130 | | | | |
| Chlorobenzene | 0.0197 | 0.0020 | 0.0005 | mg/Kg wet | 0.0200 | | 98.5 | | 70-130 | | | | |
| Chlorodibromomethane | 0.0235 | 0.0010 | 0.0005 | mg/Kg wet | 0.0200 | | 117 | | 70-130 | | | | |
| Chloroethane | 0.0223 | 0.020 | 0.0012 | mg/Kg wet | 0.0200 | | 112 | | 70-130 | | | | |
| Chloroform | 0.0187 | 0.0040 | 0.0005 | mg/Kg wet | 0.0200 | | 93.6 | | 70-130 | | | | |
| Chloromethane | 0.0168 | 0.010 | 0.0010 | mg/Kg wet | 0.0200 | | 84.2 | | 70-130 | | | | |
| **Cyclohexane** | 0.0124 | 0.010 | 0.0041 | mg/Kg wet | 0.0200 | | **61.9** | * | 70-130 | Not reported for the associated samples - no quals | | | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 0.0187 | 0.0020 | 0.0008 | mg/Kg wet | 0.0200 | | 93.7 | | 70-130 | | | | |
| 1,2-Dibromoethane (EDB) | 0.0209 | 0.0010 | 0.0006 | mg/Kg wet | 0.0200 | | 105 | | 70-130 | | | | |
| 1,2-Dichlorobenzene | 0.0207 | 0.0020 | 0.0004 | mg/Kg wet | 0.0200 | | 103 | | 70-130 | | | | |
| 1,3-Dichlorobenzene | 0.0199 | 0.0020 | 0.0005 | mg/Kg wet | 0.0200 | | 99.3 | | 70-130 | | | | |
| 1,4-Dichlorobenzene | 0.0187 | 0.0020 | 0.0005 | mg/Kg wet | 0.0200 | | 93.7 | | 70-130 | | | | |
| Dichlorodifluoromethane (Freon 12) | 0.0189 | 0.020 | 0.0011 | mg/Kg wet | 0.0200 | | 94.6 | | 40-160 | | | J | † |
| 1,1-Dichloroethane | 0.0159 | 0.0020 | 0.0006 | mg/Kg wet | 0.0200 | | 79.6 | | 70-130 | | | | |
| 1,2-Dichloroethane | 0.0231 | 0.0020 | 0.0006 | mg/Kg wet | 0.0200 | | 115 | | 70-130 | | | | |
| 1,1-Dichloroethylene | 0.0185 | 0.0040 | 0.0007 | mg/Kg wet | 0.0200 | | 92.5 | | 70-130 | | | | |
| cis-1,2-Dichloroethylene | 0.0178 | 0.0020 | 0.0005 | mg/Kg wet | 0.0200 | | 89.2 | | 70-130 | | | | |
| trans-1,2-Dichloroethylene | 0.0170 | 0.0020 | 0.0006 | mg/Kg wet | 0.0200 | | 85.1 | | 70-130 | | | | |
| 1,2-Dichloropropane | 0.0164 | 0.0020 | 0.0005 | mg/Kg wet | 0.0200 | | 82.1 | | 70-130 | | | | |
| cis-1,3-Dichloropropene | 0.0185 | 0.0010 | 0.0005 | mg/Kg wet | 0.0200 | | 92.7 | | 70-130 | | | | |
| trans-1,3-Dichloropropene | 0.0172 | 0.0010 | 0.0005 | mg/Kg wet | 0.0200 | | 86.1 | | 70-130 | | | | |
| 1,4-Dioxane | 0.172 | 0.10 | 0.035 | mg/Kg wet | 0.200 | | 85.9 | | 40-160 | | | | † |
| Ethylbenzene | 0.0204 | 0.0020 | 0.0005 | mg/Kg wet | 0.0200 | | 102 | | 70-130 | | | | |
| 2-Hexanone (MBK) | 0.194 | 0.020 | 0.0057 | mg/Kg wet | 0.200 | | 97.2 | | 70-160 | | | V-35 | † |
| Isopropylbenzene (Cumene) | 0.0213 | 0.0020 | 0.0007 | mg/Kg wet | 0.0200 | | 107 | | 70-130 | | | | |
| **Methyl Acetate** | 0.0118 | 0.0020 | 0.0015 | mg/Kg wet | 0.0200 | | **59.1** | * | 70-130 | UJ, LCSL | | L-04, V-05 | |
| Methyl tert-Butyl Ether (MTBE) | 0.0214 | 0.0040 | 0.0003 | mg/Kg wet | 0.0200 | | 107 | | 70-130 | | | | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B301293 - SW-846 5035** | | | | | | | | | | | | | |
| **LCS (B301293-BS1)** Associated with samples 3, 4, 5 | | | | | Prepared & Analyzed: 01/14/22 | | | | | | | | |
| Methyl Cyclohexane | 0.0197 | 0.0020 | 0.0007 | mg/Kg wet | 0.0200 | | 98.4 | | 70-130 | | | | |
| Methylene Chloride | 0.0151 | 0.020 | 0.0015 | mg/Kg wet | 0.0200 | | 75.3 | | 40-160 | | | J | † |
| 4-Methyl-2-pentanone (MIBK) | 0.193 | 0.020 | 0.0042 | mg/Kg wet | 0.200 | | 96.7 | | 70-160 | | | | † |
| Styrene | 0.0209 | 0.0020 | 0.0004 | mg/Kg wet | 0.0200 | | 104 | | 70-130 | | | | |
| 1,1,2,2-Tetrachloroethane | 0.0189 | 0.0010 | 0.0005 | mg/Kg wet | 0.0200 | | 94.3 | | 70-130 | | | | |
| Tetrachloroethylene | 0.0216 | 0.0020 | 0.0006 | mg/Kg wet | 0.0200 | | 108 | | 70-130 | | | | |
| Toluene | 0.0193 | 0.0020 | 0.0005 | mg/Kg wet | 0.0200 | | 96.5 | | 70-130 | | | | |
| 1,2,3-Trichlorobenzene | 0.0203 | 0.0020 | 0.0005 | mg/Kg wet | 0.0200 | | 102 | | 70-130 | | | | |
| 1,2,4-Trichlorobenzene | 0.0189 | 0.0020 | 0.0004 | mg/Kg wet | 0.0200 | | 94.5 | | 70-130 | | | | |
| 1,1,1-Trichloroethane | 0.0207 | 0.0020 | 0.0008 | mg/Kg wet | 0.0200 | | 104 | | 70-130 | | | | |
| 1,1,2-Trichloroethane | 0.0198 | 0.0020 | 0.0004 | mg/Kg wet | 0.0200 | | 98.9 | | 70-130 | | | | |
| Trichloroethylene | 0.0192 | 0.0020 | 0.0006 | mg/Kg wet | 0.0200 | | 95.9 | | 70-130 | | | | |
| **Trichlorofluoromethane (Freon 11)** | 0.0287 | 0.010 | 0.0004 | mg/Kg wet | 0.0200 | | **143** | * | 70-130 | | | High bias, samples ND - no quals L-02, V-20 | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 0.0220 | 0.010 | 0.0006 | mg/Kg wet | 0.0200 | | 110 | | 70-130 | | | | |
| Vinyl Chloride | 0.0184 | 0.010 | 0.0006 | mg/Kg wet | 0.0200 | | 92.1 | | 40-130 | | | | † |
| m+p Xylene | 0.0434 | 0.0040 | 0.0013 | mg/Kg wet | 0.0400 | | 108 | | 70-130 | | | | |
| o-Xylene | 0.0216 | 0.0020 | 0.0004 | mg/Kg wet | 0.0200 | | 108 | | 70-130 | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | *0.0525* | | | mg/Kg wet | 0.0500 | | 105 | | 70-130 | | | | |
| Surrogate: Toluene-d8 | *0.0507* | | | mg/Kg wet | 0.0500 | | 101 | | 70-130 | | | | |
| Surrogate: 4-Bromofluorobenzene | *0.0529* | | | mg/Kg wet | 0.0500 | | 106 | | 70-130 | | | | |
| **LCS Dup (B301293-BSD1)** Associated with samples 3, 4, 5 | | | | | Prepared & Analyzed: 01/14/22 | | | | | | | | |
| Acetone | 0.167 | 0.10 | 0.0092 | mg/Kg wet | 0.200 | | 83.5 | | 70-160 | 2.14 | 25 | V-35 | † |
| Benzene | 0.0157 | 0.0020 | 0.0005 | mg/Kg wet | 0.0200 | | 78.5 | | 70-130 | 3.10 | 25 | V-05 | |
| Bromochloromethane | 0.0157 | 0.0020 | 0.0008 | mg/Kg wet | 0.0200 | | 78.7 | | 70-130 | 4.02 | 25 | | |
| Bromodichloromethane | 0.0218 | 0.0020 | 0.0004 | mg/Kg wet | 0.0200 | | 109 | | 70-130 | 0.915 | 25 | | |
| Bromoform | 0.0221 | 0.0020 | 0.0006 | mg/Kg wet | 0.0200 | | 110 | | 70-130 | 3.29 | 25 | | |
| **Bromomethane** | 0.0381 | 0.010 | 0.0016 | mg/Kg wet | 0.0200 | | **190** | * | 40-130 | 0.263 | 25 | High bias, samples ND - no quals L-02, V-20, V-34 | † |
| 2-Butanone (MEK) | 0.147 | 0.040 | 0.0057 | mg/Kg wet | 0.200 | | 73.7 | | 70-160 | 1.28 | 25 | V-05 | † |
| Carbon Disulfide | 0.161 | 0.010 | 0.0070 | mg/Kg wet | 0.200 | | 80.4 | | 70-130 | 2.64 | 25 | | |
| Carbon Tetrachloride | 0.0218 | 0.0020 | 0.0008 | mg/Kg wet | 0.0200 | | 109 | | 70-130 | 2.50 | 25 | | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B301293 - SW-846 5035** | | | | | | | | | | | | | |
| **LCS Dup (B301293-BSD1)** Associated with samples 3, 4, 5 | | | | | Prepared & Analyzed: 01/14/22 | | | | | | | | |
| Chlorobenzene | 0.0198 | 0.0020 | 0.00055 | mg/Kg wet | 0.0200 | | 98.8 | | 70-130 | 0.304 | 25 | | |
| Chlorodibromomethane | 0.0234 | 0.0010 | 0.00057 | mg/Kg wet | 0.0200 | | 117 | | 70-130 | 0.171 | 25 | | |
| Chloroethane | 0.0227 | 0.020 | 0.0012 | mg/Kg wet | 0.0200 | | 114 | | 70-130 | 1.87 | 25 | | |
| Chloroform | 0.0189 | 0.0040 | 0.00055 | mg/Kg wet | 0.0200 | | 94.4 | | 70-130 | 0.851 | 25 | | |
| Chloromethane | 0.0169 | 0.010 | 0.0010 | mg/Kg wet | 0.0200 | | 84.4 | | 70-130 | 0.237 | 25 | | |
| **Cyclohexane** | 0.0125 | 0.010 | 0.0041 | mg/Kg wet | 0.0200 | | **62.7** | * | 70-130 | 1.28 | 25 | Not reported for the associated samples - no quals | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 0.0187 | 0.0020 | 0.00087 | mg/Kg wet | 0.0200 | | 93.7 | | 70-130 | 0.00 | 25 | | |
| 1,2-Dibromoethane (EDB) | 0.0209 | 0.0010 | 0.00067 | mg/Kg wet | 0.0200 | | 104 | | 70-130 | 0.191 | 25 | | |
| 1,2-Dichlorobenzene | 0.0204 | 0.0020 | 0.00044 | mg/Kg wet | 0.0200 | | 102 | | 70-130 | 1.17 | 25 | | |
| 1,3-Dichlorobenzene | 0.0199 | 0.0020 | 0.00050 | mg/Kg wet | 0.0200 | | 99.6 | | 70-130 | 0.302 | 25 | | |
| 1,4-Dichlorobenzene | 0.0190 | 0.0020 | 0.00053 | mg/Kg wet | 0.0200 | | 95.2 | | 70-130 | 1.59 | 25 | | |
| Dichlorodifluoromethane (Freon 12) | 0.0199 | 0.020 | 0.0011 | mg/Kg wet | 0.0200 | | 99.7 | | 40-160 | 5.25 | 25 | J | † |
| 1,1-Dichloroethane | 0.0160 | 0.0020 | 0.00065 | mg/Kg wet | 0.0200 | | 80.1 | | 70-130 | 0.626 | 25 | | |
| 1,2-Dichloroethane | 0.0230 | 0.0020 | 0.00066 | mg/Kg wet | 0.0200 | | 115 | | 70-130 | 0.260 | 25 | | |
| 1,1-Dichloroethylene | 0.0191 | 0.0040 | 0.00071 | mg/Kg wet | 0.0200 | | 95.6 | | 70-130 | 3.30 | 25 | | |
| cis-1,2-Dichloroethylene | 0.0184 | 0.0020 | 0.00050 | mg/Kg wet | 0.0200 | | 91.9 | | 70-130 | 2.98 | 25 | | |
| trans-1,2-Dichloroethylene | 0.0176 | 0.0020 | 0.00067 | mg/Kg wet | 0.0200 | | 88.2 | | 70-130 | 3.58 | 25 | | |
| 1,2-Dichloropropane | 0.0165 | 0.0020 | 0.00050 | mg/Kg wet | 0.0200 | | 82.3 | | 70-130 | 0.243 | 25 | | |
| cis-1,3-Dichloropropene | 0.0186 | 0.0010 | 0.00051 | mg/Kg wet | 0.0200 | | 92.8 | | 70-130 | 0.108 | 25 | | |
| trans-1,3-Dichloropropene | 0.0174 | 0.0010 | 0.00050 | mg/Kg wet | 0.0200 | | 87.1 | | 70-130 | 1.15 | 25 | | |
| 1,4-Dioxane | 0.171 | 0.10 | 0.035 | mg/Kg wet | 0.200 | | 85.6 | | 40-160 | 0.338 | 50 | | † ‡ |
| Ethylbenzene | 0.0206 | 0.0020 | 0.00054 | mg/Kg wet | 0.0200 | | 103 | | 70-130 | 0.877 | 25 | | |
| 2-Hexanone (MBK) | 0.193 | 0.020 | 0.0057 | mg/Kg wet | 0.200 | | 96.4 | | 70-160 | 0.765 | 25 | V-35 | † |
| Isopropylbenzene (Cumene) | 0.0216 | 0.0020 | 0.00071 | mg/Kg wet | 0.0200 | | 108 | | 70-130 | 1.49 | 25 | | |
| **Methyl Acetate** | 0.0127 | 0.0020 | 0.0015 | mg/Kg wet | 0.0200 | | **63.5** | * | 70-130 | 7.18 | 25 | L-04, V-05 UJ, LCSL | |
| Methyl tert-Butyl Ether (MTBE) | 0.0225 | 0.0040 | 0.00036 | mg/Kg wet | 0.0200 | | 112 | | 70-130 | 4.74 | 25 | | |
| Methyl Cyclohexane | 0.0202 | 0.0020 | 0.00075 | mg/Kg wet | 0.0200 | | 101 | | 70-130 | 2.51 | 25 | | |
| Methylene Chloride | 0.0155 | 0.020 | 0.0015 | mg/Kg wet | 0.0200 | | 77.3 | | 40-160 | 2.62 | 25 | J | † |
| 4-Methyl-2-pentanone (MIBK) | 0.191 | 0.020 | 0.0042 | mg/Kg wet | 0.200 | | 95.4 | | 70-160 | 1.43 | 25 | | † |
| Styrene | 0.0211 | 0.0020 | 0.00041 | mg/Kg wet | 0.0200 | | 106 | | 70-130 | 1.33 | 25 | | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B301293 - SW-846 5035** | | | | | | | | | | | | |
| **LCS Dup (B301293-BSD1)** Associated with samples 3, 4, 5 | | | | Prepared & Analyzed: 01/14/22 | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 0.0185 | 0.0010 | 0.00052 | mg/Kg wet | 0.0200 | | 92.5 | | 70-130 | 1.93 | 25 | |
| Tetrachloroethylene | 0.0217 | 0.0020 | 0.00066 | mg/Kg wet | 0.0200 | | 109 | | 70-130 | 0.739 | 25 | |
| Toluene | 0.0196 | 0.0020 | 0.00052 | mg/Kg wet | 0.0200 | | 98.1 | | 70-130 | 1.64 | 25 | |
| 1,2,3-Trichlorobenzene | 0.0198 | 0.0020 | 0.00054 | mg/Kg wet | 0.0200 | | 99.2 | | 70-130 | 2.49 | 25 | |
| 1,2,4-Trichlorobenzene | 0.0187 | 0.0020 | 0.00048 | mg/Kg wet | 0.0200 | | 93.6 | | 70-130 | 0.957 | 25 | |
| 1,1,1-Trichloroethane | 0.0212 | 0.0020 | 0.00080 | mg/Kg wet | 0.0200 | | 106 | | 70-130 | 2.48 | 25 | |
| 1,1,2-Trichloroethane | 0.0199 | 0.0020 | 0.00040 | mg/Kg wet | 0.0200 | | 99.5 | | 70-130 | 0.605 | 25 | |
| Trichloroethylene | 0.0196 | 0.0020 | 0.00066 | mg/Kg wet | 0.0200 | | 97.8 | | 70-130 | 1.96 | 25 | High bias, samples ND - no quals |
| **Trichlorofluoromethane (Freon 11)** | 0.0299 | 0.010 | 0.00048 | mg/Kg wet | 0.0200 | | **150** | * | 70-130 | 4.30 | 25 | L-02, V-20 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 0.0231 | 0.010 | 0.00066 | mg/Kg wet | 0.0200 | | 116 | | 70-130 | 4.70 | 25 | |
| Vinyl Chloride | 0.0190 | 0.010 | 0.00064 | mg/Kg wet | 0.0200 | | 95.1 | | 40-130 | 3.21 | 25 | † |
| m+p Xylene | 0.0445 | 0.0040 | 0.0013 | mg/Kg wet | 0.0400 | | 111 | | 70-130 | 2.46 | 25 | |
| o-Xylene | 0.0222 | 0.0020 | 0.00043 | mg/Kg wet | 0.0200 | | 111 | | 70-130 | 2.74 | 25 | |
| Surrogate: 1,2-Dichloroethane-d4 | *0.0524* | | | mg/Kg wet | 0.0500 | | 105 | | 70-130 | | | |
| Surrogate: Toluene-d8 | *0.0494* | | | mg/Kg wet | 0.0500 | | 98.9 | | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | *0.0533* | | | mg/Kg wet | 0.0500 | | 107 | | 70-130 | | | |
| **Matrix Spike (B301293-MS1)** | | **Source: 22A0721-03** | | Prepared & Analyzed: 01/14/22 | | | | | | | | |
| Acetone | 0.0796 | 0.052 | 0.0048 | mg/Kg dry | 0.105 | ND | 76.0 | | 70-130 | | | |
| Benzene | 0.00780 | 0.0010 | 0.00026 | mg/Kg dry | 0.0105 | ND | 74.5 | | 70-130 | | | V-05 |
| Bromochloromethane | 0.00768 | 0.0010 | 0.00044 | mg/Kg dry | 0.0105 | ND | 73.4 | | 70-130 | | | |
| Bromodichloromethane | 0.0112 | 0.0010 | 0.00026 | mg/Kg dry | 0.0105 | ND | 107 | | 70-130 | | | |
| Bromoform | 0.0116 | 0.0010 | 0.00036 | mg/Kg dry | 0.0105 | ND | 111 | | 70-130 | | | |
| **Bromomethane** | 0.00658 | 0.0052 | 0.00088 | mg/Kg dry | 0.0105 | ND | **62.8** | * | 70-130 | | | MS-22, V-20, V-34 |
| **2-Butanone (MEK)** | 0.0689 | 0.021 | 0.0030 | mg/Kg dry | 0.105 | ND | **65.8** | * | 70-130 | | | MS-09, V-05 |
| Carbon Disulfide | 0.00920 | 0.0052 | 0.0037 | mg/Kg dry | 0.0105 | ND | 87.9 | | 70-130 | | | |
| Carbon Tetrachloride | 0.0112 | 0.0010 | 0.00044 | mg/Kg dry | 0.0105 | ND | 107 | | 70-130 | | | |
| Chlorobenzene | 0.0103 | 0.0010 | 0.00036 | mg/Kg dry | 0.0105 | ND | 98.4 | | 70-130 | | | |
| Chlorodibromomethane | 0.0117 | 0.00052 | 0.00036 | mg/Kg dry | 0.0105 | ND | 111 | | 70-130 | | | |
| Chloroethane | 0.0104 | 0.010 | 0.00066 | mg/Kg dry | 0.0105 | ND | 98.9 | | 70-130 | | | J |
| Chloroform | 0.00958 | 0.0021 | 0.00036 | mg/Kg dry | 0.0105 | ND | 91.5 | | 70-130 | | | |
| **Chloromethane** | 0.00708 | 0.0052 | 0.00056 | mg/Kg dry | 0.0105 | ND | **67.6** | * | 70-130 | | | MS-24 |
| **Cyclohexane** | 0.00646 | 0.0052 | 0.0021 | mg/Kg dry | 0.0105 | ND | **61.7** | * | 70-130 | | | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 0.00998 | 0.0010 | 0.00044 | mg/Kg dry | 0.0105 | ND | 95.3 | | 70-130 | | | |
| 1,2-Dibromoethane (EDB) | 0.0108 | 0.00052 | 0.00036 | mg/Kg dry | 0.0105 | ND | 103 | | 70-130 | | | |
| 1,2-Dichlorobenzene | 0.0113 | 0.0010 | 0.00026 | mg/Kg dry | 0.0105 | ND | 108 | | 70-130 | | | |
| 1,3-Dichlorobenzene | 0.0110 | 0.0010 | 0.00026 | mg/Kg dry | 0.0105 | ND | 105 | | 70-130 | | | |
| 1,4-Dichlorobenzene | 0.0101 | 0.0010 | 0.00026 | mg/Kg dry | 0.0105 | ND | 96.5 | | 70-130 | | | |
| Dichlorodifluoromethane (Freon 12) | 0.0127 | 0.010 | 0.00056 | mg/Kg dry | 0.0105 | ND | 122 | | 70-130 | | | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B301294 - SW-846 5035** | | | | | | | | | | | | | |
| **Blank (B301294-BLK1)** | | | | | Prepared & Analyzed: 01/14/22 | | | | | | | | |
| Vinyl Chloride | ND | 2.0 | 0.21 | µg/L | | | | | | | | | |
| m+p Xylene | ND | 2.0 | 0.46 | µg/L | | | | | | | | | |
| o-Xylene | ND | 1.0 | 0.23 | µg/L | | | | | | | | | |
| Xylenes (total) | 0.0 | | | µg/L | | | | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | *20.9* | | | µg/L | 25.0 | | 83.4 | | 70-130 | | | | |
| Surrogate: Toluene-d8 | *24.0* | | | µg/L | 25.0 | | 96.1 | | 70-130 | | | | |
| Surrogate: 4-Bromofluorobenzene | *25.7* | | | µg/L | 25.0 | | 103 | | 70-130 | | | | |
| **LCS (B301294-BS1)** Associated with samples 1, 2, 7, 8 | | | | | Prepared & Analyzed: 01/14/22 | | | | 70-130 | | | | |
| Acetone | 110 | 50 | 2.0 | µg/L | 100 | | 110 | | 70-160 | | | | † |
| Benzene | 9.63 | 1.0 | 0.20 | µg/L | 10.0 | | 96.3 | | 70-130 | | | | |
| Bromochloromethane | 11.7 | 1.0 | 0.31 | µg/L | 10.0 | | 117 | | 70-130 | | | | |
| Bromodichloromethane | 10.1 | 0.50 | 0.18 | µg/L | 10.0 | | 101 | | 70-130 | | | | |
| Bromoform | 10.8 | 1.0 | 0.38 | µg/L | 10.0 | | 108 | | 70-130 | | | | |
| **Bromomethane** | 17.3 | 2.0 | 1.5 | µg/L | 10.0 | | **173** | * | 40-160 | High bias, samples ND - no quals | | V-34, L-02, V-20 | † |
| 2-Butanone (MEK) | 113 | 20 | 1.6 | µg/L | 100 | | 113 | | 40-160 | | | | † |
| Carbon Disulfide | 83.9 | 5.0 | 1.4 | µg/L | 100 | | 83.9 | | 70-130 | | | | |
| Carbon Tetrachloride | 9.64 | 5.0 | 0.16 | µg/L | 10.0 | | 96.4 | | 70-130 | | | | |
| Chlorobenzene | 11.5 | 1.0 | 0.11 | µg/L | 10.0 | | 115 | | 70-130 | | | | |
| Chlorodibromomethane | 11.3 | 0.50 | 0.22 | µg/L | 10.0 | | 113 | | 70-130 | | | | |
| Chloroethane | 10.6 | 2.0 | 0.32 | µg/L | 10.0 | | 106 | | 70-130 | | | | |
| Chloroform | 8.67 | 2.0 | 0.17 | µg/L | 10.0 | | 86.7 | | 70-130 | | | | |
| Chloromethane | 6.18 | 2.0 | 0.52 | µg/L | 10.0 | | 61.8 | | 40-160 | UJ, LCSL | | V-05, V-34 | † |
| Cyclohexane | 12.8 | 5.0 | 1.8 | µg/L | 10.0 | | 128 | | 70-130 | | | | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 8.95 | 5.0 | 0.80 | µg/L | 10.0 | | 89.5 | | 70-130 | | | V-05 | |
| 1,2-Dibromoethane (EDB) | 10.6 | 0.50 | 0.17 | µg/L | 10.0 | | 106 | | 70-130 | | | | |
| 1,2-Dichlorobenzene | 10.6 | 1.0 | 0.12 | µg/L | 10.0 | | 106 | | 70-130 | | | | |
| 1,3-Dichlorobenzene | 10.6 | 1.0 | 0.12 | µg/L | 10.0 | | 106 | | 70-130 | | | | |
| 1,4-Dichlorobenzene | 10.5 | 1.0 | 0.13 | µg/L | 10.0 | | 105 | | 70-130 | | | | |
| Dichlorodifluoromethane (Freon 12) | 9.08 | 2.0 | 0.19 | µg/L | 10.0 | | 90.8 | | 40-160 | | | | † |
| 1,1-Dichloroethane | 11.2 | 1.0 | 0.14 | µg/L | 10.0 | | 112 | | 70-130 | | | | |
| 1,2-Dichloroethane | 11.0 | 1.0 | 0.31 | µg/L | 10.0 | | 110 | | 70-130 | | | | |
| 1,1-Dichloroethylene | 11.8 | 1.0 | 0.14 | µg/L | 10.0 | | 118 | | 70-130 | | | | |
| cis-1,2-Dichloroethylene | 11.5 | 1.0 | 0.15 | µg/L | 10.0 | | 115 | | 70-130 | | | | |
| trans-1,2-Dichloroethylene | 12.2 | 1.0 | 0.17 | µg/L | 10.0 | | 122 | | 70-130 | | | | |
| 1,2-Dichloropropane | 12.6 | 1.0 | 0.18 | µg/L | 10.0 | | 126 | | 70-130 | | | V-20 | |
| cis-1,3-Dichloropropene | 10.2 | 0.50 | 0.16 | µg/L | 10.0 | | 102 | | 70-130 | | | | |
| trans-1,3-Dichloropropene | 9.76 | 0.50 | 0.17 | µg/L | 10.0 | | 97.6 | | 70-130 | | | | |
| 1,4-Dioxane | 98.4 | 50 | 21 | µg/L | 100 | | 98.4 | | 40-130 | | | | † |
| Ethylbenzene | 10.7 | 1.0 | 0.21 | µg/L | 10.0 | | 107 | | 70-130 | | | | |
| 2-Hexanone (MBK) | 129 | 10 | 1.1 | µg/L | 100 | | 129 | | 70-160 | | | V-20 | † |
| Isopropylbenzene (Cumene) | 11.2 | 1.0 | 0.11 | µg/L | 10.0 | | 112 | | 70-130 | | | | |
| Methyl Acetate | 10.5 | 1.0 | 0.45 | µg/L | 10.0 | | 105 | | 70-130 | | | | |
| Methyl tert-Butyl Ether (MTBE) | 9.44 | 1.0 | 0.17 | µg/L | 10.0 | | 94.4 | | 70-130 | | | | |
| Methyl Cyclohexane | 10.6 | 1.0 | 0.24 | µg/L | 10.0 | | 106 | | 70-130 | | | | |
| Methylene Chloride | 12.0 | 5.0 | 0.23 | µg/L | 10.0 | | 120 | | 70-130 | | | V-06 | |
| 4-Methyl-2-pentanone (MIBK) | 135 | 10 | 1.3 | µg/L | 100 | | 135 | | 70-160 | High bias, samples ND - no quals | | V-20 | † |
| Styrene | 11.4 | 1.0 | 0.11 | µg/L | 10.0 | | 114 | | 70-130 | | | | |
| 1,1,2,2-Tetrachloroethane | 10.2 | 0.50 | 0.13 | µg/L | 10.0 | | 102 | | 70-130 | | | | |
| Tetrachloroethylene | 12.2 | 1.0 | 0.19 | µg/L | 10.0 | | 122 | | 70-130 | | | V-06 | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B301294 - SW-846 5035** | | | | | | | | | | | | | |
| **LCS (B301294-BS1)** | | | | | Prepared & Analyzed: 01/14/22 | | | | | | | | |
| Toluene | 10.3 | 1.0 | 0.22 | µg/L | 10.0 | | 103 | | 70-130 | | | | |
| 1,2,3-Trichlorobenzene | 9.20 | 5.0 | 0.30 | µg/L | 10.0 | | 92.0 | | 70-130 | | | | |
| 1,2,4-Trichlorobenzene | 10.0 | 1.0 | 0.25 | µg/L | 10.0 | | 100 | | 70-130 | | | | |
| 1,1,1-Trichloroethane | 9.18 | 1.0 | 0.17 | µg/L | 10.0 | | 91.8 | | 70-130 | | | | |
| 1,1,2-Trichloroethane | 10.8 | 1.0 | 0.18 | µg/L | 10.0 | | 108 | | 70-130 | | | | |
| Trichloroethylene | 10.8 | 1.0 | 0.19 | µg/L | 10.0 | | 108 | | 70-130 | | | | |
| Trichlorofluoromethane (Freon 11) | 8.67 | 2.0 | 0.18 | µg/L | 10.0 | | 86.7 | | 70-130 | | | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 10.4 | 1.0 | 0.23 | µg/L | 10.0 | | 104 | | 70-130 | | | | |
| Vinyl Chloride | 11.4 | 2.0 | 0.21 | µg/L | 10.0 | | 114 | | 40-160 | | | | † |
| m+p Xylene | 21.9 | 2.0 | 0.46 | µg/L | 20.0 | | 109 | | 70-130 | | | | |
| o-Xylene | 10.6 | 1.0 | 0.23 | µg/L | 10.0 | | 106 | | 70-130 | | | | |
| Xylenes (total) | 32.4 | | | µg/L | 30.0 | | 108 | | 0-200 | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | *19.9* | | | µg/L | 25.0 | | 79.6 | | 70-130 | | | | |
| Surrogate: Toluene-d8 | *24.4* | | | µg/L | 25.0 | | 97.6 | | 70-130 | | | | |
| Surrogate: 4-Bromofluorobenzene | *25.2* | | | µg/L | 25.0 | | 101 | | 70-130 | | | | |
| **LCS Dup (B301294-BSD1)** Associated with samples 1, 2, 7, 8 | | | | | Prepared & Analyzed: 01/14/22 | | | | 70-130 | | | | |
| Acetone | 111 | 50 | 2.0 | µg/L | 100 | | 111 | | 70-160 | 0.406 | 25 | | † |
| Benzene | 9.77 | 1.0 | 0.20 | µg/L | 10.0 | | 97.7 | | 70-130 | 1.44 | 25 | | |
| Bromochloromethane | 12.0 | 1.0 | 0.31 | µg/L | 10.0 | | 120 | | 70-130 | 2.28 | 25 | | |
| Bromodichloromethane | 9.77 | 0.50 | 0.18 | µg/L | 10.0 | | 97.7 | | 70-130 | 3.12 | 25 | High bias, samples ND - no quals | |
| Bromoform | 11.0 | 1.0 | 0.38 | µg/L | 10.0 | | 110 | | 70-130 | 1.84 | 25 | | |
| **Bromomethane** | 16.1 | 2.0 | 1.5 | µg/L | 10.0 | | **161** | * | 40-160 | 6.88 | 25 | V-34, L-02, V-20 | † |
| 2-Butanone (MEK) | 115 | 20 | 1.6 | µg/L | 100 | | 115 | | 40-160 | 1.00 | 25 | | † |
| Carbon Disulfide | 85.3 | 5.0 | 1.4 | µg/L | 100 | | 85.3 | | 70-130 | 1.63 | 25 | | |
| Carbon Tetrachloride | 9.75 | 5.0 | 0.16 | µg/L | 10.0 | | 97.5 | | 70-130 | 1.13 | 25 | | |
| Chlorobenzene | 11.4 | 1.0 | 0.11 | µg/L | 10.0 | | 114 | | 70-130 | 0.523 | 25 | | |
| Chlorodibromomethane | 11.3 | 0.50 | 0.22 | µg/L | 10.0 | | 113 | | 70-130 | 0.531 | 25 | | |
| Chloroethane | 11.3 | 2.0 | 0.32 | µg/L | 10.0 | | 113 | | 70-130 | 6.32 | 25 | | |
| Chloroform | 9.07 | 2.0 | 0.17 | µg/L | 10.0 | | 90.7 | | 70-130 | 4.51 | 25 | Already qual'd - UJ, LCSL | |
| Chloromethane | 6.12 | 2.0 | 0.52 | µg/L | 10.0 | | 61.2 | | 40-160 | 0.976 | 25 | V-05, V-34 | † |
| **Cyclohexane** | 13.1 | 5.0 | 1.8 | µg/L | 10.0 | | **131** | * | 70-130 | 2.24 | 25 | High bias, samples ND - no quals | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 7.66 | 5.0 | 0.80 | µg/L | 10.0 | | 76.6 | | 70-130 | 15.5 | 25 | V-05 | |
| 1,2-Dibromoethane (EDB) | 10.2 | 0.50 | 0.17 | µg/L | 10.0 | | 102 | | 70-130 | 3.28 | 25 | | |
| 1,2-Dichlorobenzene | 10.3 | 1.0 | 0.12 | µg/L | 10.0 | | 103 | | 70-130 | 3.26 | 25 | | |
| 1,3-Dichlorobenzene | 10.6 | 1.0 | 0.12 | µg/L | 10.0 | | 106 | | 70-130 | 0.0946 | 25 | | |
| 1,4-Dichlorobenzene | 10.1 | 1.0 | 0.13 | µg/L | 10.0 | | 101 | | 70-130 | 3.78 | 25 | | |
| Dichlorodifluoromethane (Freon 12) | 9.50 | 2.0 | 0.19 | µg/L | 10.0 | | 95.0 | | 40-160 | 4.52 | 25 | | † |
| 1,1-Dichloroethane | 11.3 | 1.0 | 0.14 | µg/L | 10.0 | | 113 | | 70-130 | 0.801 | 25 | | |
| 1,2-Dichloroethane | 11.2 | 1.0 | 0.31 | µg/L | 10.0 | | 112 | | 70-130 | 2.26 | 25 | | |
| 1,1-Dichloroethylene | 11.5 | 1.0 | 0.14 | µg/L | 10.0 | | 115 | | 70-130 | 2.57 | 25 | | |
| cis-1,2-Dichloroethylene | 11.5 | 1.0 | 0.15 | µg/L | 10.0 | | 115 | | 70-130 | 0.696 | 25 | | |
| trans-1,2-Dichloroethylene | 12.1 | 1.0 | 0.17 | µg/L | 10.0 | | 121 | | 70-130 | 1.15 | 25 | | |
| 1,2-Dichloropropane | 12.7 | 1.0 | 0.18 | µg/L | 10.0 | | 127 | | 70-130 | 0.554 | 25 | V-20 | |
| cis-1,3-Dichloropropene | 10.0 | 0.50 | 0.16 | µg/L | 10.0 | | 100 | | 70-130 | 1.98 | 25 | | |
| trans-1,3-Dichloropropene | 9.91 | 0.50 | 0.17 | µg/L | 10.0 | | 99.1 | | 70-130 | 1.53 | 25 | | |
| 1,4-Dioxane | 102 | 50 | 21 | µg/L | 100 | | 102 | | 40-130 | 3.49 | 50 | | † ‡ |
| Ethylbenzene | 10.7 | 1.0 | 0.21 | µg/L | 10.0 | | 107 | | 70-130 | 0.374 | 25 | | |
| 2-Hexanone (MBK) | 124 | 10 | 1.1 | µg/L | 100 | | 124 | | 70-160 | 3.29 | 25 | V-20 | † |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B301294 - SW-846 5035** | | | | | | | | | | | |
| **LCS Dup (B301294-BSD1)** Associated with samples 1, 2, 7, 8 | | | | | Prepared & Analyzed: 01/14/22 | | | 70-130 | | | |
| Isopropylbenzene (Cumene) | 11.1 | 1.0 | 0.11 | µg/L | 10.0 | | 111 | 70-130 | 0.538 | 25 | |
| Methyl Acetate | 9.89 | 1.0 | 0.45 | µg/L | 10.0 | | 98.9 | 70-130 | 5.79 | 25 | |
| Methyl tert-Butyl Ether (MTBE) | 9.57 | 1.0 | 0.17 | µg/L | 10.0 | | 95.7 | 70-130 | 1.37 | 25 | |
| Methyl Cyclohexane | 9.98 | 1.0 | 0.24 | µg/L | 10.0 | | 99.8 | 70-130 | 6.03 | 25 | |
| Methylene Chloride | 12.2 | 5.0 | 0.23 | µg/L | 10.0 | | 122 | 70-130 | 1.24 | 25 | V-06 |
| 4-Methyl-2-pentanone (MIBK) | 131 | 10 | 1.3 | µg/L | 100 | | 131 | 70-160 | 2.41 | 25 | V-20 † |
| Styrene | 11.4 | 1.0 | 0.11 | µg/L | 10.0 | | 114 | 70-130 | 0.702 | 25 | |
| 1,1,2,2-Tetrachloroethane | 10.0 | 0.50 | 0.13 | µg/L | 10.0 | | 100 | 70-130 | 2.17 | 25 | |
| Tetrachloroethylene | 12.3 | 1.0 | 0.19 | µg/L | 10.0 | | 123 | 70-130 | 0.489 | 25 | V-06 |
| Toluene | 10.4 | 1.0 | 0.22 | µg/L | 10.0 | | 104 | 70-130 | 0.772 | 25 | |
| 1,2,3-Trichlorobenzene | 8.58 | 5.0 | 0.30 | µg/L | 10.0 | | 85.8 | 70-130 | 6.97 | 25 | |
| 1,2,4-Trichlorobenzene | 9.56 | 1.0 | 0.25 | µg/L | 10.0 | | 95.6 | 70-130 | 4.80 | 25 | |
| 1,1,1-Trichloroethane | 9.41 | 1.0 | 0.17 | µg/L | 10.0 | | 94.1 | 70-130 | 2.47 | 25 | |
| 1,1,2-Trichloroethane | 10.8 | 1.0 | 0.18 | µg/L | 10.0 | | 108 | 70-130 | 0.185 | 25 | |
| Trichloroethylene | 11.0 | 1.0 | 0.19 | µg/L | 10.0 | | 110 | 70-130 | 2.57 | 25 | |
| Trichlorofluoromethane (Freon 11) | 8.98 | 2.0 | 0.18 | µg/L | 10.0 | | 89.8 | 70-130 | 3.51 | 25 | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 10.7 | 1.0 | 0.23 | µg/L | 10.0 | | 107 | 70-130 | 2.28 | 25 | |
| Vinyl Chloride | 11.7 | 2.0 | 0.21 | µg/L | 10.0 | | 117 | 40-160 | 2.33 | 25 | † |
| m+p Xylene | 21.8 | 2.0 | 0.46 | µg/L | 20.0 | | 109 | 70-130 | 0.550 | 25 | |
| o-Xylene | 10.5 | 1.0 | 0.23 | µg/L | 10.0 | | 105 | 70-130 | 0.379 | 25 | |
| Xylenes (total) | 32.3 | | | µg/L | 30.0 | | 108 | 0-200 | 0.494 | | |
| Surrogate: 1,2-Dichloroethane-d4 | *20.7* | | | µg/L | 25.0 | | 82.9 | 70-130 | | | |
| Surrogate: Toluene-d8 | *24.5* | | | µg/L | 25.0 | | 98.0 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | *25.5* | | | µg/L | 25.0 | | 102 | 70-130 | | | |
| **Batch B301313 - SW-846 5035** | | | | | | | | | | | |
| **Blank (B301313-BLK1)** | | | | | Prepared & Analyzed: 02/16/22 | | | | | | |
| Acetone | ND | 50 | 2.0 | µg/L | | | | | | | |
| Benzene | ND | 1.0 | 0.20 | µg/L | | | | | | | |
| Bromochloromethane | ND | 1.0 | 0.31 | µg/L | | | | | | | |
| Bromodichloromethane | ND | 0.50 | 0.18 | µg/L | | | | | | | |
| Bromoform | ND | 1.0 | 0.38 | µg/L | | | | | | | |
| Bromomethane | ND | 2.0 | 1.5 | µg/L | | | | | | | V-34 |
| 2-Butanone (MEK) | ND | 20 | 1.6 | µg/L | | | | | | | |
| Carbon Disulfide | ND | 5.0 | 1.4 | µg/L | | | | | | | |
| Carbon Tetrachloride | ND | 5.0 | 0.16 | µg/L | | | | | | | |
| Chlorobenzene | ND | 1.0 | 0.11 | µg/L | | | | | | | |
| Chlorodibromomethane | ND | 0.50 | 0.22 | µg/L | | | | | | | |
| Chloroethane | ND | 2.0 | 0.32 | µg/L | | | | | | | |
| Chloroform | ND | 2.0 | 0.17 | µg/L | | | | | | | |
| Chloromethane | ND | 2.0 | 0.52 | µg/L | | | | | | | V-05, V-34 |
| Cyclohexane | ND | 5.0 | 1.8 | µg/L | | | | | | | |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 5.0 | 0.80 | µg/L | | | | | | | |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | 0.17 | µg/L | | | | | | | |
| 1,2-Dichlorobenzene | ND | 1.0 | 0.12 | µg/L | | | | | | | |
| 1,3-Dichlorobenzene | ND | 1.0 | 0.12 | µg/L | | | | | | | |
| 1,4-Dichlorobenzene | ND | 1.0 | 0.13 | µg/L | | | | | | | |
| Dichlorodifluoromethane (Freon 12) | ND | 2.0 | 0.19 | µg/L | | | | | | | |
| 1,1-Dichloroethane | ND | 1.0 | 0.14 | µg/L | | | | | | | |

High bias, samples ND - no quals

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B301313 - SW-846 5035** | | | | | | | | | | | | |
| **Blank (B301313-BLK1)** | | | | | Prepared & Analyzed: 02/16/22 | | | | | | | |
| 1,2-Dichloroethane | ND | 1.0 | 0.31 | µg/L | | | | | | | | |
| 1,1-Dichloroethylene | ND | 1.0 | 0.14 | µg/L | | | | | | | | |
| cis-1,2-Dichloroethylene | ND | 1.0 | 0.15 | µg/L | | | | | | | | |
| trans-1,2-Dichloroethylene | ND | 1.0 | 0.17 | µg/L | | | | | | | | |
| 1,2-Dichloropropane | ND | 1.0 | 0.18 | µg/L | | | | | | | | |
| cis-1,3-Dichloropropene | ND | 0.50 | 0.16 | µg/L | | | | | | | | |
| trans-1,3-Dichloropropene | ND | 0.50 | 0.17 | µg/L | | | | | | | | |
| 1,4-Dioxane | ND | 50 | 21 | µg/L | | | | | | | | |
| Ethylbenzene | ND | 1.0 | 0.21 | µg/L | | | | | | | | |
| 2-Hexanone (MBK) | ND | 10 | 1.1 | µg/L | | | | | | | | |
| Isopropylbenzene (Cumene) | ND | 1.0 | 0.11 | µg/L | | | | | | | | |
| Methyl Acetate | ND | 1.0 | 0.45 | µg/L | | | | | | | | |
| Methyl tert-Butyl Ether (MTBE) | ND | 1.0 | 0.17 | µg/L | | | | | | | | |
| Methyl Cyclohexane | ND | 1.0 | 0.24 | µg/L | | | | | | | | |
| Methylene Chloride | ND | 5.0 | 0.23 | µg/L | | | | | | | | |
| 4-Methyl-2-pentanone (MIBK) | ND | 10 | 1.3 | µg/L | | | | | | | | |
| Styrene | ND | 1.0 | 0.11 | µg/L | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | 0.13 | µg/L | | | | | | | | |
| Tetrachloroethylene | ND | 1.0 | 0.19 | µg/L | | | | | | | | |
| Toluene | ND | 1.0 | 0.22 | µg/L | | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | 5.0 | 0.30 | µg/L | | | | | | | V-05 | |
| 1,2,4-Trichlorobenzene | ND | 1.0 | 0.25 | µg/L | | | | | | | | |
| 1,1,1-Trichloroethane | ND | 1.0 | 0.17 | µg/L | | | | | | | | |
| 1,1,2-Trichloroethane | ND | 1.0 | 0.18 | µg/L | | | | | | | | |
| Trichloroethylene | ND | 1.0 | 0.19 | µg/L | | | | | | | | |
| Trichlorofluoromethane (Freon 11) | ND | 2.0 | 0.18 | µg/L | | | | | | | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | ND | 1.0 | 0.23 | µg/L | | | | | | | | |
| Vinyl Chloride | ND | 2.0 | 0.21 | µg/L | | | | | | | | |
| m+p Xylene | ND | 2.0 | 0.46 | µg/L | | | | | | | | |
| o-Xylene | ND | 1.0 | 0.23 | µg/L | | | | | | | | |
| Xylenes (total) | 0.0 | | | µg/L | | | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | *23.0* | | | µg/L | 25.0 | | 92.1 | 70-130 | | | | |
| Surrogate: Toluene-d8 | *23.8* | | | µg/L | 25.0 | | 95.1 | 70-130 | | | | |
| Surrogate: 4-Bromofluorobenzene | *24.7* | | | µg/L | 25.0 | | 98.7 | 70-130 | | | | |
| **LCS (B301313-BS1)** Associated with samples 1RE, 2RE, 7RE, 8RE | | | | | Prepared & Analyzed: 02/16/22 | | | | | | | |
| Acetone Only reanalyzed for tetrachloroethylene | 107 | 50 | 2.0 | µg/L | 100 | | 107 | 70-160 | | | | † |
| Benzene | 10.4 | 1.0 | 0.20 | µg/L | 10.0 | | 104 | 70-130 | | | | |
| Bromochloromethane | 12.4 | 1.0 | 0.31 | µg/L | 10.0 | | 124 | 70-130 | | | V-20 | |
| Bromodichloromethane | 10.7 | 0.50 | 0.18 | µg/L | 10.0 | | 107 | 70-130 | | | | |
| Bromoform | 10.9 | 1.0 | 0.38 | µg/L | 10.0 | | 109 | 70-130 | | | | |
| **Bromomethane** Not reanalyzed - no quals | 21.8 | 2.0 | 1.5 | µg/L | 10.0 | | **218** | * 40-160 | | | L-02, V-20, V-34 | † |
| 2-Butanone (MEK) | 99.1 | 20 | 1.6 | µg/L | 100 | | 99.1 | 40-160 | | | | † |
| Carbon Disulfide | 101 | 5.0 | 1.4 | µg/L | 100 | | 101 | 70-130 | | | | |
| Carbon Tetrachloride | 11.4 | 5.0 | 0.16 | µg/L | 10.0 | | 114 | 70-130 | | | | |
| Chlorobenzene | 10.6 | 1.0 | 0.11 | µg/L | 10.0 | | 106 | 70-130 | | | | |
| Chlorodibromomethane | 11.0 | 0.50 | 0.22 | µg/L | 10.0 | | 110 | 70-130 | | | | |
| Chloroethane | 11.7 | 2.0 | 0.32 | µg/L | 10.0 | | 117 | 70-130 | | | | |
| Chloroform | 11.1 | 2.0 | 0.17 | µg/L | 10.0 | | 111 | 70-130 | | | | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B301313 - SW-846 5035** | | | | | | | | | | | | | |
| **LCS Dup (B301313-BSD1)** Associated with samples 1RE, 2RE, 7RE, 8RE | | | | | Prepared & Analyzed: 02/16/22 | | | | 70-130 | | | | |
| Acetone Only reanalyzed for tetrachloroethylene | 111 | 50 | 2.0 | µg/L | 100 | | 111 | | 70-160 | 3.37 | 25 | | † |
| Benzene | 10.7 | 1.0 | 0.20 | µg/L | 10.0 | | 107 | | 70-130 | 2.84 | 25 | | |
| Bromochloromethane | 12.6 | 1.0 | 0.31 | µg/L | 10.0 | | 126 | | 70-130 | 0.961 | 25 | V-20 | |
| Bromodichloromethane | 11.2 | 0.50 | 0.18 | µg/L | 10.0 | | 112 | | 70-130 | 4.49 | 25 | | |
| Bromoform | 11.0 | 1.0 | 0.38 | µg/L | 10.0 | | 110 | | 70-130 | 0.183 | 25 | | |
| **Bromomethane** Not reanalyzed - no quals | 22.7 | 2.0 | 1.5 | µg/L | 10.0 | | **227** | * | 40-160 | 4.13 | 25 | L-02, V-20, V-34 | † |
| 2-Butanone (MEK) | 103 | 20 | 1.6 | µg/L | 100 | | 103 | | 40-160 | 3.62 | 25 | | † |
| Carbon Disulfide | 102 | 5.0 | 1.4 | µg/L | 100 | | 102 | | 70-130 | 1.12 | 25 | | |
| Carbon Tetrachloride | 11.5 | 5.0 | 0.16 | µg/L | 10.0 | | 115 | | 70-130 | 1.22 | 25 | | |
| Chlorobenzene | 10.8 | 1.0 | 0.11 | µg/L | 10.0 | | 108 | | 70-130 | 1.87 | 25 | | |
| Chlorodibromomethane | 11.3 | 0.50 | 0.22 | µg/L | 10.0 | | 113 | | 70-130 | 2.51 | 25 | | |
| Chloroethane | 12.4 | 2.0 | 0.32 | µg/L | 10.0 | | 124 | | 70-130 | 5.74 | 25 | | |
| Chloroform | 11.0 | 2.0 | 0.17 | µg/L | 10.0 | | 110 | | 70-130 | 1.09 | 25 | | |
| Chloromethane Not reanalyzed - no quals | 4.82 | 2.0 | 0.52 | µg/L | 10.0 | | 48.2 | | 40-160 | 3.38 | 25 | V-05, V-34 | † |
| Cyclohexane | 11.6 | 5.0 | 1.8 | µg/L | 10.0 | | 116 | | 70-130 | 2.70 | 25 | | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 8.70 | 5.0 | 0.80 | µg/L | 10.0 | | 87.0 | | 70-130 | 3.27 | 25 | | |
| 1,2-Dibromoethane (EDB) | 11.0 | 0.50 | 0.17 | µg/L | 10.0 | | 110 | | 70-130 | 4.36 | 25 | | |
| 1,2-Dichlorobenzene | 9.83 | 1.0 | 0.12 | µg/L | 10.0 | | 98.3 | | 70-130 | 0.406 | 25 | | |
| 1,3-Dichlorobenzene | 9.92 | 1.0 | 0.12 | µg/L | 10.0 | | 99.2 | | 70-130 | 0.708 | 25 | | |
| 1,4-Dichlorobenzene | 9.87 | 1.0 | 0.13 | µg/L | 10.0 | | 98.7 | | 70-130 | 0.807 | 25 | | |
| Dichlorodifluoromethane (Freon 12) | 10.0 | 2.0 | 0.19 | µg/L | 10.0 | | 100 | | 40-160 | 2.73 | 25 | | † |
| 1,1-Dichloroethane | 11.3 | 1.0 | 0.14 | µg/L | 10.0 | | 113 | | 70-130 | 0.178 | 25 | | |
| 1,2-Dichloroethane | 11.7 | 1.0 | 0.31 | µg/L | 10.0 | | 117 | | 70-130 | 2.43 | 25 | | |
| 1,1-Dichloroethylene | 12.5 | 1.0 | 0.14 | µg/L | 10.0 | | 125 | | 70-130 | 2.02 | 25 | V-20 | |
| cis-1,2-Dichloroethylene | 11.7 | 1.0 | 0.15 | µg/L | 10.0 | | 117 | | 70-130 | 0.428 | 25 | | |
| trans-1,2-Dichloroethylene | 11.8 | 1.0 | 0.17 | µg/L | 10.0 | | 118 | | 70-130 | 1.84 | 25 | | |
| 1,2-Dichloropropane | 10.9 | 1.0 | 0.18 | µg/L | 10.0 | | 109 | | 70-130 | 0.914 | 25 | | |
| cis-1,3-Dichloropropene | 10.0 | 0.50 | 0.16 | µg/L | 10.0 | | 100 | | 70-130 | 2.08 | 25 | | |
| trans-1,3-Dichloropropene | 9.98 | 0.50 | 0.17 | µg/L | 10.0 | | 99.8 | | 70-130 | 2.13 | 25 | | |
| 1,4-Dioxane | 116 | 50 | 21 | µg/L | 100 | | 116 | | 40-130 | 11.2 | 50 | | † ‡ |
| Ethylbenzene | 10.4 | 1.0 | 0.21 | µg/L | 10.0 | | 104 | | 70-130 | 0.0959 | 25 | | |
| 2-Hexanone (MBK) | 104 | 10 | 1.1 | µg/L | 100 | | 104 | | 70-160 | 5.38 | 25 | | † |
| Isopropylbenzene (Cumene) | 10.4 | 1.0 | 0.11 | µg/L | 10.0 | | 104 | | 70-130 | 1.26 | 25 | | |
| Methyl Acetate | 8.77 | 1.0 | 0.45 | µg/L | 10.0 | | 87.7 | | 70-130 | 3.48 | 25 | | |
| Methyl tert-Butyl Ether (MTBE) | 11.2 | 1.0 | 0.17 | µg/L | 10.0 | | 112 | | 70-130 | 1.89 | 25 | | |
| Methyl Cyclohexane | 10.9 | 1.0 | 0.24 | µg/L | 10.0 | | 109 | | 70-130 | 2.50 | 25 | | |
| Methylene Chloride | 11.2 | 5.0 | 0.23 | µg/L | 10.0 | | 112 | | 70-130 | 2.34 | 25 | | |
| 4-Methyl-2-pentanone (MIBK) | 108 | 10 | 1.3 | µg/L | 100 | | 108 | | 70-160 | 3.83 | 25 | | † |
| Styrene | 10.7 | 1.0 | 0.11 | µg/L | 10.0 | | 107 | | 70-130 | 0.753 | 25 | | |
| 1,1,2,2-Tetrachloroethane | 9.97 | 0.50 | 0.13 | µg/L | 10.0 | | 99.7 | | 70-130 | 0.500 | 25 | | |
| Tetrachloroethylene | 11.5 | 1.0 | 0.19 | µg/L | 10.0 | | 115 | | 70-130 | 0.00 | 25 | | |
| Toluene | 10.8 | 1.0 | 0.22 | µg/L | 10.0 | | 108 | | 70-130 | 1.22 | 25 | | |
| 1,2,3-Trichlorobenzene | 8.26 | 5.0 | 0.30 | µg/L | 10.0 | | 82.6 | | 70-130 | 6.37 | 25 | V-05 | |
| 1,2,4-Trichlorobenzene | 8.85 | 1.0 | 0.25 | µg/L | 10.0 | | 88.5 | | 70-130 | 1.59 | 25 | | |
| 1,1,1-Trichloroethane | 11.5 | 1.0 | 0.17 | µg/L | 10.0 | | 115 | | 70-130 | 3.90 | 25 | | |
| 1,1,2-Trichloroethane | 10.7 | 1.0 | 0.18 | µg/L | 10.0 | | 107 | | 70-130 | 3.32 | 25 | | |
| Trichloroethylene | 11.2 | 1.0 | 0.19 | µg/L | 10.0 | | 112 | | 70-130 | 3.45 | 25 | | |
| Trichlorofluoromethane (Freon 11) | 10.7 | 2.0 | 0.18 | µg/L | 10.0 | | 107 | | 70-130 | 2.28 | 25 | | |
| **1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)** Not reanalyzed - no quals | 13.2 | 1.0 | 0.23 | µg/L | 10.0 | | **132** | * | 70-130 | 2.22 | 25 | L-07, V-20 | |

GTD 3/9/2022

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B298943 - SW-846 5030B** | | | | | | | | | | | | |
| **Blank (B298943-BLK1)** | | | | | Prepared & Analyzed: 01/14/22 | | | | | | | |
| Benzene | ND | 1.0 | 0.13 | µg/L | | | | | | | | |
| n-Butylbenzene | ND | 1.0 | 0.14 | µg/L | | | | | | | | |
| sec-Butylbenzene | ND | 1.0 | 0.10 | µg/L | | | | | | | | |
| tert-Butylbenzene | ND | 1.0 | 0.090 | µg/L | | | | | | | | |
| Ethylbenzene | ND | 1.0 | 0.090 | µg/L | | | | | | | | |
| Isopropylbenzene (Cumene) | ND | 1.0 | 0.10 | µg/L | | | | | | | | |
| p-Isopropyltoluene (p-Cymene) | ND | 1.0 | 0.090 | µg/L | | | | | | | | |
| Methyl tert-Butyl Ether (MTBE) | ND | 1.0 | 0.17 | µg/L | | | | | | | | |
| Naphthalene | ND | 2.0 | 0.15 | µg/L | | | | | | | V-05 | |
| n-Propylbenzene | ND | 1.0 | 0.080 | µg/L | | | | | | | | |
| Toluene | ND | 1.0 | 0.11 | µg/L | | | | | | | | |
| 1,2,4-Trimethylbenzene | ND | 1.0 | 0.10 | µg/L | | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 1.0 | 0.10 | µg/L | | | | | | | | |
| m+p Xylene | ND | 2.0 | 0.18 | µg/L | | | | | | | | |
| o-Xylene | ND | 1.0 | 0.090 | µg/L | | | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | *20.9* | | | µg/L | 25.0 | | 83.4 | 70-130 | | | | |
| Surrogate: Toluene-d8 | *24.0* | | | µg/L | 25.0 | | 96.1 | 70-130 | | | | |
| Surrogate: 4-Bromofluorobenzene | *25.7* | | | µg/L | 25.0 | | 103 | 70-130 | | | | |
| **LCS (B298943-BS1)** | | | | | Prepared & Analyzed: 01/14/22 | | | | | | | |
| Benzene | 9.63 | 1.0 | 0.13 | µg/L | 10.0 | | 96.3 | 70-130 | | | | |
| n-Butylbenzene | 8.70 | 1.0 | 0.14 | µg/L | 10.0 | | 87.0 | 70-130 | | | | |
| sec-Butylbenzene | 9.68 | 1.0 | 0.10 | µg/L | 10.0 | | 96.8 | 70-130 | | | | |
| tert-Butylbenzene | 10.6 | 1.0 | 0.090 | µg/L | 10.0 | | 106 | 70-130 | | | | |
| Ethylbenzene | 10.7 | 1.0 | 0.090 | µg/L | 10.0 | | 107 | 70-130 | | | | |
| Isopropylbenzene (Cumene) | 11.2 | 1.0 | 0.10 | µg/L | 10.0 | | 112 | 70-130 | | | | |
| p-Isopropyltoluene (p-Cymene) | 10.3 | 1.0 | 0.090 | µg/L | 10.0 | | 103 | 70-130 | | | | |
| Methyl tert-Butyl Ether (MTBE) | 9.44 | 1.0 | 0.17 | µg/L | 10.0 | | 94.4 | 70-130 | | | | |
| Naphthalene | 8.51 | 2.0 | 0.15 | µg/L | 10.0 | | 85.1 | 40-130 | | | V-05 | † |
| n-Propylbenzene | 10.4 | 1.0 | 0.080 | µg/L | 10.0 | | 104 | 70-130 | | | | |
| Toluene | 10.3 | 1.0 | 0.11 | µg/L | 10.0 | | 103 | 70-130 | | | | |
| 1,2,4-Trimethylbenzene | 9.89 | 1.0 | 0.10 | µg/L | 10.0 | | 98.9 | 70-130 | | | | |
| 1,3,5-Trimethylbenzene | 11.0 | 1.0 | 0.10 | µg/L | 10.0 | | 110 | 70-130 | | | | |
| m+p Xylene | 21.9 | 2.0 | 0.18 | µg/L | 20.0 | | 109 | 70-130 | | | | |
| o-Xylene | 10.6 | 1.0 | 0.090 | µg/L | 10.0 | | 106 | 70-130 | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | *19.9* | | | µg/L | 25.0 | | 79.6 | 70-130 | | | | |
| Surrogate: Toluene-d8 | *24.4* | | | µg/L | 25.0 | | 97.6 | 70-130 | | | | |
| Surrogate: 4-Bromofluorobenzene | *25.2* | | | µg/L | 25.0 | | 101 | 70-130 | | | | |
| **LCS Dup (B298943-BSD1)** | | | | | Prepared & Analyzed: 01/14/22 | | | | | | | |
| Benzene | 9.77 | 1.0 | 0.13 | µg/L | 10.0 | | 97.7 | 70-130 | 1.44 | 25 | | |
| n-Butylbenzene | 8.47 | 1.0 | 0.14 | µg/L | 10.0 | | 84.7 | 70-130 | 2.68 | 25 | | |
| sec-Butylbenzene | 9.35 | 1.0 | 0.10 | µg/L | 10.0 | | 93.5 | 70-130 | 3.47 | 25 | | |
| tert-Butylbenzene | 10.4 | 1.0 | 0.090 | µg/L | 10.0 | | 104 | 70-130 | 2.48 | 25 | | |
| Ethylbenzene | 10.7 | 1.0 | 0.090 | µg/L | 10.0 | | 107 | 70-130 | 0.374 | 25 | | |
| Isopropylbenzene (Cumene) | 11.1 | 1.0 | 0.10 | µg/L | 10.0 | | 111 | 70-130 | 0.538 | 25 | | |
| p-Isopropyltoluene (p-Cymene) | 10.1 | 1.0 | 0.090 | µg/L | 10.0 | | 101 | 70-130 | 2.15 | 25 | | |
| Methyl tert-Butyl Ether (MTBE) | 9.57 | 1.0 | 0.17 | µg/L | 10.0 | | 95.7 | 70-130 | 1.37 | 25 | | |
| Naphthalene | 8.01 | 2.0 | 0.15 | µg/L | 10.0 | | 80.1 | 40-130 | 6.05 | 25 | V-05 | † |
| n-Propylbenzene | 10.4 | 1.0 | 0.080 | µg/L | 10.0 | | 104 | 70-130 | 0.0960 | 25 | | |

waters 80-120 limits - no quals
lab QC sample

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | | %REC | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B301294 - SW-846 5035** | | | | | | | | | | | | | |
| **LCS (B301294-BS1)** | | | | | Prepared & Analyzed: 01/14/22 | | | | | | | | |
| Toluene | 10.3 | 1.0 | 0.22 | µg/L | 10.0 | | | 103 | 70-130 | | | | |
| 1,2,3-Trichlorobenzene | 9.20 | 5.0 | 0.30 | µg/L | 10.0 | | | 92.0 | 70-130 | | | | |
| 1,2,4-Trichlorobenzene | 10.0 | 1.0 | 0.25 | µg/L | 10.0 | | | 100 | 70-130 | | | | |
| 1,1,1-Trichloroethane | 9.18 | 1.0 | 0.17 | µg/L | 10.0 | | | 91.8 | 70-130 | | | | |
| 1,1,2-Trichloroethane | 10.8 | 1.0 | 0.18 | µg/L | 10.0 | | | 108 | 70-130 | | | | |
| Trichloroethylene | 10.8 | 1.0 | 0.19 | µg/L | 10.0 | | | 108 | 70-130 | | | | |
| Trichlorofluoromethane (Freon 11) | 8.67 | 2.0 | 0.18 | µg/L | 10.0 | | | 86.7 | 70-130 | | | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 10.4 | 1.0 | 0.23 | µg/L | 10.0 | | | 104 | 70-130 | | | | |
| Vinyl Chloride | 11.4 | 2.0 | 0.21 | µg/L | 10.0 | | | 114 | 40-160 | | | | † |
| m+p Xylene | 21.9 | 2.0 | 0.46 | µg/L | 20.0 | | | 109 | 70-130 | | | | |
| o-Xylene | 10.6 | 1.0 | 0.23 | µg/L | 10.0 | | | 106 | 70-130 | | | | |
| Xylenes (total) | 32.4 | | | µg/L | 30.0 | | | 108 | 0-200 | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | *19.9* | | | µg/L | 25.0 | | | 79.6 | 70-130 | | | waters 80-120 limits - no quals lab QC sample | |
| Surrogate: Toluene-d8 | *24.4* | | | µg/L | 25.0 | | | 97.6 | 70-130 | | | | |
| Surrogate: 4-Bromofluorobenzene | *25.2* | | | µg/L | 25.0 | | | 101 | 70-130 | | | | |
| **LCS Dup (B301294-BSD1)** | | | | | Prepared & Analyzed: 01/14/22 | | | | | | | GTD 3/9/2022 | |
| Acetone | 111 | 50 | 2.0 | µg/L | 100 | | | 111 | 70-160 | 0.406 | 25 | | † |
| Benzene | 9.77 | 1.0 | 0.20 | µg/L | 10.0 | | | 97.7 | 70-130 | 1.44 | 25 | | |
| Bromochloromethane | 12.0 | 1.0 | 0.31 | µg/L | 10.0 | | | 120 | 70-130 | 2.28 | 25 | | |
| Bromodichloromethane | 9.77 | 0.50 | 0.18 | µg/L | 10.0 | | | 97.7 | 70-130 | 3.12 | 25 | | |
| Bromoform | 11.0 | 1.0 | 0.38 | µg/L | 10.0 | | | 110 | 70-130 | 1.84 | 25 | | |
| **Bromomethane** | 16.1 | 2.0 | 1.5 | µg/L | 10.0 | | | **161** | 40-160 | 6.88 | 25 | V-34, L-02, V-20 | † |
| 2-Butanone (MEK) | 115 | 20 | 1.6 | µg/L | 100 | | | 115 | 40-160 | 1.00 | 25 | | † |
| Carbon Disulfide | 85.3 | 5.0 | 1.4 | µg/L | 100 | | | 85.3 | 70-130 | 1.63 | 25 | | |
| Carbon Tetrachloride | 9.75 | 5.0 | 0.16 | µg/L | 10.0 | | | 97.5 | 70-130 | 1.13 | 25 | | |
| Chlorobenzene | 11.4 | 1.0 | 0.11 | µg/L | 10.0 | | | 114 | 70-130 | 0.523 | 25 | | |
| Chlorodibromomethane | 11.3 | 0.50 | 0.22 | µg/L | 10.0 | | | 113 | 70-130 | 0.531 | 25 | | |
| Chloroethane | 11.3 | 2.0 | 0.32 | µg/L | 10.0 | | | 113 | 70-130 | 6.32 | 25 | | |
| Chloroform | 9.07 | 2.0 | 0.17 | µg/L | 10.0 | | | 90.7 | 70-130 | 4.51 | 25 | | |
| Chloromethane | 6.12 | 2.0 | 0.52 | µg/L | 10.0 | | | 61.2 | 40-160 | 0.976 | 25 | V-05, V-34 | † |
| **Cyclohexane** | 13.1 | 5.0 | 1.8 | µg/L | 10.0 | | | **131** | 70-130 | 2.24 | 25 | | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 7.66 | 5.0 | 0.80 | µg/L | 10.0 | | | 76.6 | 70-130 | 15.5 | 25 | V-05 | |
| 1,2-Dibromoethane (EDB) | 10.2 | 0.50 | 0.17 | µg/L | 10.0 | | | 102 | 70-130 | 3.28 | 25 | | |
| 1,2-Dichlorobenzene | 10.3 | 1.0 | 0.12 | µg/L | 10.0 | | | 103 | 70-130 | 3.26 | 25 | | |
| 1,3-Dichlorobenzene | 10.6 | 1.0 | 0.12 | µg/L | 10.0 | | | 106 | 70-130 | 0.0946 | 25 | | |
| 1,4-Dichlorobenzene | 10.1 | 1.0 | 0.13 | µg/L | 10.0 | | | 101 | 70-130 | 3.78 | 25 | | |
| Dichlorodifluoromethane (Freon 12) | 9.50 | 2.0 | 0.19 | µg/L | 10.0 | | | 95.0 | 40-160 | 4.52 | 25 | | † |
| 1,1-Dichloroethane | 11.3 | 1.0 | 0.14 | µg/L | 10.0 | | | 113 | 70-130 | 0.801 | 25 | | |
| 1,2-Dichloroethane | 11.2 | 1.0 | 0.31 | µg/L | 10.0 | | | 112 | 70-130 | 2.26 | 25 | | |
| 1,1-Dichloroethylene | 11.5 | 1.0 | 0.14 | µg/L | 10.0 | | | 115 | 70-130 | 2.57 | 25 | | |
| cis-1,2-Dichloroethylene | 11.5 | 1.0 | 0.15 | µg/L | 10.0 | | | 115 | 70-130 | 0.696 | 25 | | |
| trans-1,2-Dichloroethylene | 12.1 | 1.0 | 0.17 | µg/L | 10.0 | | | 121 | 70-130 | 1.15 | 25 | | |
| 1,2-Dichloropropane | 12.7 | 1.0 | 0.18 | µg/L | 10.0 | | | 127 | 70-130 | 0.554 | 25 | V-20 | |
| cis-1,3-Dichloropropene | 10.0 | 0.50 | 0.16 | µg/L | 10.0 | | | 100 | 70-130 | 1.98 | 25 | | |
| trans-1,3-Dichloropropene | 9.91 | 0.50 | 0.17 | µg/L | 10.0 | | | 99.1 | 70-130 | 1.53 | 25 | | |
| 1,4-Dioxane | 102 | 50 | 21 | µg/L | 100 | | | 102 | 40-130 | 3.49 | 50 | | † ‡ |
| Ethylbenzene | 10.7 | 1.0 | 0.21 | µg/L | 10.0 | | | 107 | 70-130 | 0.374 | 25 | | |
| 2-Hexanone (MBK) | 124 | 10 | 1.1 | µg/L | 100 | | | 124 | 70-160 | 3.29 | 25 | V-20 | † |

RPD <100 - within limits

Sample ID: 360175-HA001001 / 360175-HA001001D

| Compound | Result | LabQual | Dup | LabQual | RPD |
|---|---|---|---|---|---|
| Tetrachloroethylene | 3.4 | | 4.7 | | 32.1 |
| Trichloroethylene | 0.0013 | | 0.0011 | | 16.7 |

GTD 3/9/2022

# Response Factor Report GCMSVOA2

Method Path : Y:\1\METHODS\
Method File : B060920W.M
Title : 8260 CALIBRATION VOAMS 5973
Last Update : Wed Jun 10 07:48:28 2020
Response Via : Initial Calibration

Calibration Files
0.4 =B2016110.D 0.5 =B2016111.D 1.0 =B2016112.D 2.0 =B2016113.D 5.0 =B2016114.D 10 =B2016115.D 20 =B2016116.D
50 =B2016117.D 100 =B2016118.D 200 =B2016119.D

| | | Compound | 0.4 | 0.5 | 1.0 | 2.0 | 5.0 | 10 | 20 | 50 | 100 | 200 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) | I | PENTAFLUOROBENZENE... | ISTD | | | | | | | | | | | |
| 2) | S | 1,2-DICHLOROET... | 0.796 | 0.799 | 0.793 | 0.775 | 0.787 | 0.776 | 0.775 | 0.756 | 0.745 | 0.729 | 0.773 | 2.98 |
| 3) | T | DICHLORODIFLOU... | | 0.635 | 0.632 | 0.669 | 0.680 | 0.646 | 0.656 | 0.514 | 0.505 | | 0.617 | 11.06 |
| 4) | | DIFLUOROCHLORO... | 1.064 | 0.925 | 0.882 | 0.890 | 0.854 | 0.834 | 0.831 | 0.698 | 0.691 | | 0.852 | 13.35 |
| 5) | P | CHLOROMETHANE | 2.253 | 2.009 | 1.882 | 2.109 | 2.070 | 1.894 | 1.645 | 1.137 | | | 1.875 | 18.61 |
| 6) | C | VINYL CHLORIDE | 0.815 | 0.752 | 0.732 | 0.756 | 0.733 | 0.731 | 0.711 | 0.621 | 0.619 | 0.534 | 0.700 | 11.93# |
| 7) | T | BROMOMETHANE | | | | | 0.132 | 0.139 | 0.112 | 0.173 | 0.200 | 0.200 | 0.159 | 23.41 |
| 8) | | CHLOROETHANE | 0.495 | 0.377 | 0.422 | 0.408 | 0.392 | 0.366 | 0.353 | 0.324 | 0.318 | | 0.384 | 14.19 |
| 9) | | FLUORODICHLORO... | 1.090 | 1.035 | 0.988 | 0.985 | 0.993 | 0.966 | 0.959 | 0.905 | 0.902 | 0.798 | 0.962 | 8.32 |
| 10) | T | TRICHLOROFLUOR... | 0.817 | 0.807 | 0.816 | 0.852 | 0.824 | 0.834 | 0.786 | 0.769 | 0.777 | 0.661 | 0.794 | 6.75 |
| 11) | | ETHANOL | | | | | 0.009 | 0.009 | 0.007 | 0.012 | 0.011 | 0.011 | 0.010 | 18.87 |
| 12) | T | DI ETHYL ETHER | | 0.418 | 0.411 | 0.435 | 0.398 | 0.404 | 0.421 | 0.397 | 0.394 | 0.365 | 0.405 | 4.91 |
| 13) | | ACROLEIN | | 0.180 | 0.159 | 0.151 | 0.145 | 0.142 | 0.141 | 0.119 | 0.112 | | 0.143 | 14.97 |
| 14) | T | ACETONE | | | 0.262 | 0.241 | 0.209 | 0.213 | 0.208 | 0.199 | 0.192 | 0.178 | 0.213 | 12.63 |
| 15) | C | 1,1-DICHLOROET... | 0.805 | 0.805 | 0.845 | 0.821 | 0.849 | 0.833 | 0.835 | 0.775 | 0.769 | 0.664 | 0.800 | 6.87# |
| 16) | | 1,1,2-TRICL-1,... | 0.339 | 0.376 | 0.366 | 0.421 | 0.434 | 0.413 | 0.413 | 0.386 | 0.386 | 0.318 | 0.385 | 9.63 |
| 17) | | IODOMETHANE | 0.095 | 0.093 | 0.110 | 0.154 | 0.197 | 0.272 | 0.365 | 0.456 | 0.453 | 0.430 | 0.262 | 58.00 |
| 18) | | METHYL ACETATE | | | 0.840 | 0.821 | 0.620 | 0.638 | 0.625 | 0.614 | 0.644 | 0.585 | 0.674 | 14.67 |
| 19) | | T-BUTYL ALCOHOL | | | 0.066 | 0.081 | 0.076 | 0.071 | 0.076 | 0.077 | 0.075 | 0.075 | 0.075 | 5.87 |
| 20) | | ACRYLONITRILE | | 0.200 | 0.221 | 0.240 | 0.234 | 0.244 | 0.254 | 0.243 | 0.243 | 0.232 | 0.234 | 6.78 |
| 21) | T | METHYLENE CHLO... | 0.944 | 0.937 | 0.932 | 0.939 | 0.886 | 0.883 | 0.855 | 0.802 | 0.811 | 0.744 | 0.873 | 7.92 |
| 22) | | CARBON DISULFIDE | 1.409 | 1.363 | 1.317 | 1.397 | 1.378 | 1.365 | 1.315 | 1.123 | 1.119 | 0.924 | 1.271 | 12.68 |
| 23) | T | METHYL TERT-BU... | 1.238 | 1.277 | 1.218 | 1.304 | 1.222 | 1.263 | 1.235 | 1.207 | 1.219 | 1.150 | 1.233 | 3.42 |
| 24) | T | TRANS 1,2-DICH... | 0.766 | 0.752 | 0.718 | 0.800 | 0.799 | 0.800 | 0.792 | 0.742 | 0.748 | 0.675 | 0.759 | 5.41 |
| 25) | P | 1,1-DICHLOROET... | 0.974 | 1.003 | 0.901 | 0.950 | 0.945 | 0.963 | 0.960 | 0.913 | 0.916 | 0.838 | 0.936 | 4.95 |
| 26) | | VINYL ACETATE | 1.718 | 1.750 | 1.690 | 1.749 | 1.648 | 1.658 | 1.626 | 1.465 | 1.259 | 1.100 | 1.566 | 14.22 |
| 27) | | DI ISOPROPYL E... | 2.148 | 2.371 | 2.055 | 2.185 | 2.041 | 2.073 | 1.997 | 1.959 | 1.914 | 1.729 | 2.047 | 8.36 |
| 28) | T | 2-BUTANONE | 0.389 | 0.374 | 0.355 | 0.349 | 0.316 | 0.319 | 0.323 | 0.310 | 0.300 | 0.282 | 0.332 | 10.26 |
| 29) | | T-BUTYL ETHYL ... | 1.790 | 1.734 | 1.737 | 1.816 | 1.732 | 1.755 | 1.752 | 1.706 | 1.691 | 1.572 | 1.729 | 3.81 |
| 30) | T | CIS-1,2-DICHLO... | 0.903 | 0.881 | 0.883 | 0.969 | 0.940 | 0.928 | 0.931 | 0.877 | 0.886 | 0.806 | 0.901 | 5.00 |
| 31) | | 2,2-DICHLOROPR... | 0.745 | 0.808 | 0.742 | 0.774 | 0.754 | 0.727 | 0.725 | 0.690 | 0.694 | 0.622 | 0.728 | 7.03 |
| 32) | | ETHYL ACETATE | | | | 0.805 | 0.728 | 0.760 | 0.731 | 0.724 | 0.698 | 0.651 | 0.728 | 6.62 |
| 33) | | BROMOCHLOROMET... | | 0.156 | 0.204 | 0.221 | 0.216 | 0.222 | 0.220 | 0.204 | 0.170 | 0.152 | 0.196 | 14.58 |
| 34) | T | TETRAHYDROFURAN | | | | 0.259 | 0.210 | 0.213 | 0.201 | 0.199 | 0.196 | 0.183 | 0.209 | 11.60 |
| 35) | | T-BUTYL FORMATE | 0.475 | 0.555 | 0.508 | 0.593 | 0.536 | 0.534 | 0.536 | 0.543 | 0.522 | 0.533 | 0.534 | 5.69 |
| 36) | C | CHLOROFORM | 0.859 | 0.885 | 0.837 | 0.887 | 0.847 | 0.849 | 0.858 | 0.827 | 0.828 | 0.766 | 0.844 | 4.08# |
| 37) | T | 1,1,1-TRICHLOR... | 0.732 | 0.691 | 0.779 | 0.774 | 0.803 | 0.772 | 0.795 | 0.760 | 0.771 | 0.699 | 0.758 | 5.06 |
| 38) | | CYCLOHEXANE | | | | | 1.374 | 1.246 | 1.219 | 1.064 | 1.061 | 0.895 | 1.143 | 14.85 |
| 39) | T | CARBON TETRACH... | 0.701 | 0.673 | 0.679 | 0.687 | 0.700 | 0.699 | 0.699 | 0.680 | 0.697 | 0.609 | 0.682 | 4.08 |
| 40) | | 1,1-DICHLOROPR... | 0.642 | 0.598 | 0.665 | 0.702 | 0.694 | 0.688 | 0.696 | 0.640 | 0.654 | 0.578 | 0.656 | 6.45 |
| 41) | T | BENZENE | 2.071 | 1.974 | 1.812 | 1.939 | 1.804 | 1.807 | 1.818 | 1.698 | 1.707 | 1.546 | 1.818 | 8.28 |
| 42) | | T-AMYL ALCOHOL | | 0.049 | 0.051 | 0.056 | 0.052 | 0.055 | 0.056 | 0.058 | 0.057 | 0.063 | 0.055 | 7.71 |
| 43) | | T-AMYLMETHYL E... | 1.301 | 1.201 | 1.266 | 1.316 | 1.234 | 1.273 | 1.268 | 1.276 | 1.270 | 1.181 | 1.258 | 3.33 |

GTD 4/28/2022

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Quantitation Report (QT Reviewed)

385

Data Path : \\Voa2\MSDChem\1\DATA\B060920\
Data File : B2016112.D
Acq On : 9 Jun 2020 10:12 am
Operator :
Sample : 8260 STD 1.0 PPB 2006068 Inst : GCMSVOA2
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 09 10:44:05 2020
Quant Method : C:\MSDCHEM\1\METHODS\B042720W.M
Quant Title : 8260 CALIBRATION VOAMS 5973
QLast Update : Tue Apr 28 08:24:11 2020
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | | Dev(Min) |
|---|---|---|---|---|---|---|---|
| Internal Standards | | | | | | | |
| 1) PENTAFLUOROBENZENE - ISTD | 4.287 | 168 | 92992 | 30.00 | UG/L | | 0.00 |
| 44) 1,4-DIFLOUROBENZENE - ... | 5.006 | 114 | 153151 | 30.00 | UG/L | | 0.00 |
| 65) CHLOROBENZENE-D5 ISTD | 7.839 | 82 | 83588 | 30.00 | UG/L | | 0.00 |
| 84) 1,4-DICHLOROBENZENE-D4... | 10.136 | 152 | 85042 | 30.00 | UG/L | | 0.00 |
| System Monitoring Compounds | | | | | | | |
| 2) 1,2-DICHLOROETHANE-D4 SS | 4.571 | 65 | 61418 | 26.97 | UG/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 107.88% | | | | |
| 45) TOLUENE-D8 SS | 6.438 | 98 | 158673 | 25.63 | UG/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 102.52% | | | | |
| 66) 4-BROMOFLUROBENZENE SS | 8.999 | 95 | 64304 | 24.83 | UG/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 99.32% | | | | |
| Target Compounds | | | | | | | Qvalue |
| 3) DICHLORODIFLOUROMETHANE | 1.129 | 85 | 1958 | 0.92 | UG/L | | 99 |
| 4) DIFLUOROCHLOROMETHANE | 1.138 | 51 | 2734 | 0.69 | UG/L | # | 84 |
| 5) CHLOROMETHANE | 1.243 | 50 | 5834 | 1.02 | UG/L | | 97 |
| 6) VINYL CHLORIDE | 1.308 | 62 | 2269 | 0.83 | UG/L | | 92 |
| 8) CHLOROETHANE | 1.578 | 64 | 1307 | 1.05 | UG/L | | 97 |
| 9) FLUORODICHLOROMETHANE | 1.701 | 67 | 3062 | 1.14 | UG/L | | 91 |
| 10) TRICHLOROFLUOROMETHANE | 1.732 | 101 | 2528 | 1.00 | UG/L | | 97 |
| 12) DI ETHYL ETHER | 1.928 | 59 | 1273 | 0.75 | UG/L | # | 80 |
| 13) ACROLEIN | 2.036 | 56 | 4923 | 8.42 | UG/L | # | 95 |
| 14) ACETONE | 2.150 | 43 | 8109m | 9.02 | UG/L | | |
| 15) 1,1-DICHLOROETHENE | 2.096 | 61 | 2619 | 0.91 | UG/L | # | 91 |
| 16) 1,1,2-TRICL-1,2,2-TRIF... | 2.090 | 101 | 1135 | 0.97 | UG/L | | 96 |
| 17) IODOMETHANE | 2.218 | 142 | 3407 | 1.76 | UG/L | | 98 |
| 18) METHYL ACETATE | 2.405 | 43 | 2605 | 0.85 | UG/L | # | 87 |
| 19) T-BUTYL ALCOHOL | 2.607 | 59 | 2050 | 6.49 | UG/L | # | 58 |
| 20) ACRYLONITRILE | 2.727 | 53 | 685 | 0.57 | UG/L | # | 78 |
| 21) METHYLENE CHLORIDE | 2.491 | 49 | 2888 | 0.73 | UG/L | # | 76 |
| 22) CARBON DISULFIDE | 2.266 | 76 | 40825 | 10.57 | UG/L | | 100 |
| 23) METHYL TERT-BUTYL ETHE... | 2.724 | 73 | 3777 | 0.97 | UG/L | # | 84 |
| 24) TRANS 1,2-DICHLOROETHENE | 2.724 | 61 | 2227 | 0.78 | UG/L | # | 63 |
| 25) 1,1-DICHLOROETHANE | 3.153 | 63 | 2793 | 0.83 | UG/L | # | 92 |
| 26) VINYL ACETATE | 3.213 | 43 | 52376 | 7.66 | UG/L | # | 96 |
| 27) DI ISOPROPYL ETHER | 3.215 | 45 | 6370 | 0.66 | UG/L | # | 68 |
| 28) 2-BUTANONE | 3.781 | 43 | 11017 | 7.44 | UG/L | # | 93 |
| 29) T-BUTYL ETHYL ETHER | 3.588 | 59 | 5385 | 0.74 | UG/L | # | 94 |
| 30) CIS-1,2-DICHLOROETHENE | 3.744 | 61 | 2738 | 0.81 | UG/L | # | 86 |
| 31) 2,2-DICHLOROPROPANE | 3.733 | 77 | 2299 | 1.10 | UG/L | # | 80 |
| 33) BROMOCHLOROMETHANE | 3.986 | 128 | 631 | 0.99 | UG/L | # | 68 |
| 35) T-BUTYL FORMATE | 4.133 | 59 | 1575 | 0.70 | UG/L | # | 85 |
| 36) CHLOROFORM | 4.082 | 83 | 2595 | 1.05 | UG/L | | 94 |
| 37) 1,1,1-TRICHLOROETHANE | 4.239 | 97 | 2414 | 1.06 | UG/L | # | 79 |
| 38) CYCLOHEXANE | 4.281 | 56 | 6375 | 1.20 | UG/L | # | 74 |
| 39) CARBON TETRACHLORIDE | 4.398 | 117 | 2104 | 1.01 | UG/L | | 87 |
| 40) 1,1-DICHLOROPROPENE | 4.409 | 75 | 2061 | 1.08 | UG/L | | 96 |
| 41) BENZENE | 4.608 | 78 | 5617 | 1.06 | UG/L | | 96 |
| 42) T-AMYL ALCOHOL | 4.665 | 59 | 1581 | 6.78 | UG/L | # | 63 |
| 43) T-AMYLMETHYL ETHER | 4.727 | 73 | 3924 | 1.00 | UG/L | | 88 |
| 46) 1,2-DICHLOROETHANE | 4.645 | 62 | 2418 | 0.76 | UG/L | # | 89 |
| 47) TRICHLOROETHENE | 5.250 | 95 | 1426 | 0.93 | UG/L | | 98 |
| 48) METHYLCYCLOHEXANE | 5.412 | 83 | 2625 | 0.96 | UG/L | # | 79 |
| 49) 1,2-DICHLOROPROPANE | 5.478 | 63 | 1669 | 0.78 | UG/L | | 89 |
| 50) DIBROMOMETHANE | 5.591 | 93 | 896 | 0.89 | UG/L | | 93 |
| 52) BROMODICHLOROMETHANE | 5.756 | 83 | 1859 | 0.85 | UG/L | # | 91 |

GTD 4/28/2022

Quantitation Report (QT Reviewed)



Data Path : \\Voa2\MSDChem\1\DATA\B011422\
Data File : B22V011433.D
Acq On : 14 Jan 2022 9:12 pm
Operator :
Sample : 22A0721-07 Inst : GCMSVOA2
Misc :
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Jan 17 11:51:51 2022
Quant Method : C:\MSDCHEM\1\METHODS\B060920W.M
Quant Title : 8260 CALIBRATION VOAMS 5973
QLast Update : Thu Dec 30 11:16:32 2021
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) PENTAFLUOROBENZENE - ISTD | 4.281 | 168 | 78243 | 30.00 | UG/L | 0.00 |
| 44) 1,4-DIFLOUROBENZENE - ... | 4.997 | 114 | 112328 | 30.00 | UG/L | 0.00 |
| 65) CHLOROBENZENE-D5 ISTD | 7.831 | 82 | 59654 | 30.00 | UG/L | 0.00 |
| 84) 1,4-DICHLOROBENZENE-D4... | 10.127 | 152 | 66459 | 30.00 | UG/L | -0.01 |
| System Monitoring Compounds | | | | | | |
| 2) 1,2-DICHLOROETHANE-D4 SS | 4.560 | 65 | 40655 | 20.16 | UG/L | -0.01 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 80.64% | | | |
| 45) TOLUENE-D8 SS | 6.430 | 98 | 113441 | 24.16 | UG/L | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 96.64% | | | |
| 66) 4-BROMOFLUROBENZENE SS | 8.990 | 95 | 46781 | 25.27 | UG/L | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 101.08% | | | |
| Target Compounds | | | | | | Qvalue |
| 24) TRANS 1,2-DICHLOROETHENE | 2.721 | 61 | 1989 | 1.00 | UG/L | 89 |
| 30) CIS-1,2-DICHLOROETHENE | 3.741 | 61 | 11398 ✓ | 4.85 | UG/L | 97 |
| 47) TRICHLOROETHENE | 5.242 | 95 | 8952 | 8.21 | UG/L | 92 |
| 61) TETRACHLOROETHENE | 7.015 | 164 | 112102 | 118.42 | UG/L | 97 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

GTD 4/28/2022

DUSR Calculations Sheet

**Sample ID:** 360175-GW002-15
**TC:** cis-1,2-dichloroethylene
**ICAL Level:** 3
**Val File Result for TC:** 4.8 ug/L

## Ical Calc

| | | | |
|---|---|---|---|
| **Area TC** | 2738 | **1** | 0.903 |
| **Area IS** | 92992 | **2** | 0.881 |
| | | **3** | 0.883 |
| **Conc TC** | 1 | **4** | 0.969 |
| **Conc IS** | 30 | **5** | 0.94 |
| | | **6** | 0.928 |
| **RRF =** | 0.883302 | **7** | 0.931 |
| | | **8** | 0.877 |
| | | **9** | 0.886 |
| | | **10** | 0.806 |
| | | **Avg RRF =** | 0.9004 |
| | | **Std Dev =** | 0.045123 |
| | | **%RSD =** | 5.011389 |

## Sample Calc

| | | | |
|---|---|---|---|
| **Area TC** | 11398 | **DF** | 1 |
| **Area IS** | 78243 | | |
| | | | |
| **Conc IS** | 30 | | |
| **Avg RRF** | 0.9004 | | |
| | | | |
| **Conc TC =** | 4.853655 µg/L | Conc TC = | 4.853655 |

Notes:
Green = matched reported value
Red = did not match reported value

GTD 4/28/2022

Method Path : M:\1\methods\
Method File : GS012422.M
Title : 8260 SIM/SCAN 09/21/18

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 44) | T | Carbon tetrach... | 0.411 | 0.453 | 0.330 | 0.403 | 0.447 | 0.423 | 0.435 | 0.515 | 0.492 | 0.499 | 0.441 | 12.30 |
| 45) | T | 1,1-Dichloropr... | 0.426 | 0.510 | 0.346 | 0.441 | 0.467 | 0.421 | 0.429 | 0.488 | 0.454 | 0.447 | 0.443 | 9.96 |
| 46) | T | Benzene | 1.458 | 1.718 | 1.166 | 1.312 | 1.341 | 1.232 | 1.230 | 1.380 | 1.276 | 1.252 | 1.337 | 11.83 |
| 47) | | t-Amyl alcohol | | | | | | | | | | | 0.000 | -1.00 |
| 48) | T | T-AMYLMETHYL E... | 0.892 | 0.991 | 0.872 | 0.918 | 0.959 | 0.888 | 0.904 | 1.033 | 0.963 | 0.964 | 0.938 | 5.50 |
| 49) | I | 1,4-Difluorobenzen... | ----------ISTD---------- | | | | | | | | | | | |
| 50) | S | Toluene SS | 1.152 | 1.158 | 1.143 | 1.137 | 1.134 | 1.133 | 1.129 | 1.182 | 1.181 | 1.196 | 1.155 | 2.09 |
| 51) | T | 1,2-Dichloroet... | 0.282 | 0.292 | 0.256 | 0.257 | 0.267 | 0.254 | 0.258 | 0.294 | 0.275 | 0.270 | 0.271 | 5.49 |
| 52) | T | Methyl methacr... | | | | | | | | | | | 0.000 | -1.00 |
| 53) | T | Trichloroethene | 0.166 | 0.208 | 0.153 | 0.187 | 0.202 | 0.183 | 0.189 | 0.218 | 0.204 | 0.200 | 0.191 | 10.40 |
| 54) | T | Methylcyclohexane | 0.243 | 0.299 | 0.197 | 0.254 | 0.275 | 0.251 | 0.253 | 0.288 | 0.271 | 0.256 | 0.259 | 10.83 |
| 55) | C | 1,2-Dichloropr... | 0.216 | 0.243 | 0.195 | 0.213 | 0.214 | 0.199 | 0.200 | 0.223 | 0.208 | 0.197 | 0.211 | 6.92# |
| 56) | T | Dibromomethane | 0.106 | 0.106 | 0.101 | 0.107 | 0.113 | 0.103 | 0.109 | 0.123 | 0.115 | 0.114 | 0.110 | 6.18 |
| 57) | T | 1,4-Dioxane | | | | | 0.002 | 0.002 | 0.002 | 0.003 | 0.003 | 0.003 | 0.003 | 9.55 |
| 58) | T | Bromodichlorom... | 0.232 | 0.260 | 0.222 | 0.232 | 0.248 | 0.238 | 0.246 | 0.287 | 0.272 | 0.269 | 0.251 | 8.30 |
| 59) | T | 2-Chloroethyl ... | | | | | | | | | | | 0.000 | -1.00 |
| 60) | T | MIBK | 0.233 | 0.230 | 0.220 | 0.223 | 0.221 | 0.214 | 0.216 | 0.234 | 0.189 | | 0.220 | 6.22 |
| 61) | T | cis-1,3-Dichlo... | 0.279 | 0.309 | 0.288 | 0.289 | 0.311 | 0.288 | 0.296 | 0.317 | 0.300 | 0.305 | 0.298 | 4.12 |
| 62) | C | Toluene | 0.939 | 1.037 | 0.724 | 0.813 | 0.801 | 0.742 | 0.740 | 0.870 | 0.839 | 0.806 | 0.831 | 11.68# |
| 63) | T | trans-1,3-Dich... | 0.228 | 0.247 | 0.231 | 0.244 | 0.260 | 0.251 | 0.261 | 0.289 | 0.261 | 0.263 | 0.254 | 6.94 |
| 64) | T | Ethyl methacry... | | | | | | | | | | | 0.000 | -1.00 |
| 65) | T | 1,1,2-Trichlor... | 0.155 | 0.165 | 0.148 | 0.153 | 0.161 | 0.149 | 0.158 | 0.178 | 0.165 | 0.163 | 0.159 | 5.63 |
| 66) | T | 2-Hexanone (MBK) | | 0.165 | 0.156 | 0.166 | 0.163 | 0.157 | 0.156 | 0.170 | 0.137 | 0.114 | 0.154 | 11.46 |
| 67) | T | Tetrachloroethene | 0.172 | 0.245 | 0.175 | 0.209 | 0.227 | 0.212 | 0.216 | 0.245 | 0.223 | 0.208 | 0.213 | 11.59 |
| 68) | T | 1,3-Dichloropr... | 0.266 | 0.284 | 0.266 | 0.279 | 0.285 | 0.268 | 0.271 | 0.300 | 0.271 | 0.255 | 0.274 | 4.63 |
| 69) | T | Dibromochlorom... | 0.183 | 0.178 | 0.169 | 0.181 | 0.189 | 0.184 | 0.193 | 0.228 | 0.212 | 0.214 | 0.193 | 9.73 |
| 70) | T | 1,2-Dibromoethane | 0.159 | 0.161 | 0.150 | 0.155 | 0.165 | 0.154 | 0.160 | 0.184 | 0.167 | 0.166 | 0.162 | 5.83 |
| 71) | I | Chlorobenzene-d5 ... | ----------ISTD---------- | | | | | | | | | | | |
| 72) | S | 4-Bromofluorob... | 0.907 | 0.909 | 0.917 | 0.911 | 0.906 | 0.899 | 0.898 | 0.884 | 0.885 | 0.865 | 0.898 | 1.77 |
| 73) | T | Chlorobenzene | 1.074 | 1.258 | 1.000 | 1.141 | 1.176 | 1.100 | 1.130 | 1.254 | 1.165 | 1.099 | 1.140 | 6.93 |
| 74) | T | 1,1,1,2-Tetrac... | 0.351 | 0.390 | 0.349 | 0.387 | 0.404 | 0.388 | 0.408 | 0.456 | 0.425 | 0.403 | 0.396 | 8.02 |
| 75) | C | Ethylbenzene | 1.860 | 2.279 | 1.666 | 1.996 | 2.006 | 1.896 | 1.934 | 2.115 | 1.926 | 1.783 | 1.946 | 8.76# |
| 76) | T | m/p-Xylenes | 1.569 | 1.812 | 1.376 | 1.582 | 1.577 | 1.500 | 1.511 | 1.626 | 1.458 | 1.305 | 1.532 | 9.13 |
| 77) | T | o-Xylene | 1.559 | 1.817 | 1.453 | 1.596 | 1.622 | 1.521 | 1.546 | 1.691 | 1.536 | 1.409 | 1.575 | 7.41 |
| 78) | T | Styrene | 1.290 | 1.431 | 1.172 | 1.267 | 1.301 | 1.228 | 1.226 | 1.335 | 1.196 | 1.072 | 1.252 | 7.82 |
| 79) | P | Bromoform | 0.232 | 0.256 | 0.248 | 0.265 | 0.268 | 0.265 | 0.290 | 0.341 | 0.320 | 0.317 | 0.280 | 12.66 |
| 80) | T | Isopropylbenzene | 1.842 | 2.186 | 1.653 | 1.968 | 2.062 | 1.925 | 1.943 | 2.177 | 1.996 | 1.830 | 1.958 | 8.27 |
| 81) | T | cis-1,4-Dichlo... | | | | | | | | | | | 0.000 | -1.00 |
| 82) | P | 1,1,2,2-Tetrac... | 0.448 | 0.491 | 0.449 | 0.480 | 0.455 | 0.441 | 0.459 | 0.508 | 0.442 | 0.399 | 0.457 | 6.67 |
| 83) | T | 1,4-Dichloro-2... | 0.152 | 0.167 | 0.150 | 0.154 | 0.164 | 0.161 | 0.173 | 0.198 | 0.176 | 0.166 | 0.166 | 8.50 |
| 84) | T | Bromobenzene | 0.899 | 1.006 | 0.883 | 0.801 | 0.914 | 0.747 | 0.751 | 0.825 | 0.742 | 0.667 | 0.823 | 12.36 |
| 85) | T | 1,2,3-Trichlor... | 0.504 | 0.557 | 0.533 | 0.538 | 0.540 | 0.387 | 0.551 | 0.622 | 0.552 | 0.540 | 0.532 | 11.13 |
| 86) | T | n-Propylbenzene | 2.150 | 2.561 | 1.971 | 2.331 | 2.402 | 2.230 | 2.230 | 2.453 | 2.175 | 1.879 | 2.238 | 9.39 |
| 87) | T | 2-Chlorotoluene | 1.251 | 1.524 | 1.190 | 1.324 | 1.360 | 1.274 | 1.288 | 1.420 | 1.277 | 1.138 | 1.305 | 8.49 |
| 88) | T | 1,3,5-Trimethy... | | 1.772 | 1.446 | 1.643 | 1.677 | 1.572 | 1.585 | 1.737 | 1.544 | 1.383 | 1.595 | 8.02 |
| 89) | T | 4-Chlorotoluene | 1.634 | 1.832 | 1.499 | 1.648 | 1.648 | 1.532 | 1.543 | 1.674 | 1.493 | 1.340 | 1.584 | 8.41 |
| 90) | I | 1,4-Dichlorobenzen... | ----------ISTD---------- | | | | | | | | | | | |
| 91) | T | tert-Butylbenzene | 1.399 | 1.667 | 1.225 | 1.482 | 1.570 | 1.458 | 1.503 | 1.753 | 1.691 | 1.713 | 1.546 | 10.67 |
| 92) | T | 1,2,4-Trimethy... | 1.611 | 1.837 | 1.525 | 1.644 | 1.686 | 1.600 | 1.608 | 1.864 | 1.781 | 1.795 | 1.695 | 6.86 |
| 93) | T | sec-Butylbenzene | 1.926 | 2.259 | 1.749 | 2.083 | 2.191 | 2.062 | 2.116 | 2.464 | 2.353 | 2.354 | 2.156 | 10.01 |

GTD 4/28/2022

600

Quantitation Report (QT Reviewed)

Data Path : M:\1\data\G012422\
Data File : G22V024012.D
Acq On : 24 Jan 2022 10:03 am
Operator :
Sample : 8260 STD 1.0PPB Inst : GCMSVOA7
Misc :
ALS Vial : 12 Sample Multiplier: 1

619

Quant Time: Jan 24 10:25:34 2022
Quant Method : M:\1\methods\GS091521.M
Quant Title : 8260 SIM/SCAN 09/21/18
QLast Update : Fri Dec 03 12:41:03 2021
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | | Dev(Min) |
|---|---|---|---|---|---|---|---|
| Internal Standards | | | | | | | |
| 1) Pentafluorobenzene | 5.723 | 168 | 714015 | 30.00 | ug/L | | 0.00 |
| 49) 1,4-Difluorobenzene - ... | 6.560 | 114 | 1228435 | 30.00 | ug/L | | 0.00 |
| 71) Chlorobenzene-d5 ISTD | 9.626 | 82 | 557828 | 30.00 | ug/L | | 0.00 |
| 90) 1,4-Dichlorobenzene-d4... | 11.980 | 152 | 558932 | 30.00 | ug/L | | 0.00 |
| System Monitoring Compounds | | | | | | | |
| 2) 1,2-Dichloroethane-d4 | 6.013 | 65 | 339749 | 27.51 | ug/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 110.04% | | | | |
| 50) Toluene SS | 8.154 | 98 | 1169965 | 26.32 | ug/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 105.28% | | | | |
| 72) 4-Bromofluorobenzene SS | 10.817 | 95 | 426331 | 25.35 | ug/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 101.40% | | | | |
| Target Compounds | | | | | | | Qvalue |
| 3) Dichlorodifluoromethane | 1.292 | 85 | 9424 | 0.87 | ug/L | | 91 |
| 4) Difluorochloromethane | 1.308 | 51 | 13453 | 1.05 | ug/L | | 94 |
| 5) Chloromethane | 1.439 | 50 | 14942 | 1.35 | ug/L | | 71 |
| 6) Vinyl chloride | 1.536 | 62 | 9606 | 0.96 | ug/L | | 96 |
| 7) Bromomethane | 1.804 | 94 | 8462m | 2.43 | ug/L | | |
| 8) Chloroethane | 1.901 | 64 | 4899 | 1.17 | ug/L | | 89 |
| 9) Ethanol | 2.347 | 45 | 1384 | 13.07 | ug/L | # | 54 |
| 10) Fluorodichloromethane | 2.088 | 67 | 12984 | 0.95 | ug/L | | 98 |
| 11) Trichlorofluoromethane | 2.144 | 101 | 11018 | 0.77 | ug/L | | 94 |
| 12) Diethyl ether | 2.438 | 59 | 8371 | 1.13 | ug/L | | 81 |
| 14) Acetone | 2.722 | 43 | 38669 | 13.37 | ug/L | | 96 |
| 15) 1,1-Dichloroethene | 2.656 | 61 | 13492 | 0.83 | ug/L | | 94 |
| 16) 1,1,2-TRICL-1,2,2-TRIF... | 2.671 | 101 | 7524 | 0.76 | ug/L | | 91 |
| 17) Iodomethane | 2.805 | 142 | 87201 | 9.46 | ug/L | | 94 |
| 19) Methyl acetate | 3.115 | 43 | 8047 | 0.92 | ug/L | | 85 |
| 20) t-Butyl alcohol | 3.425 | 59 | 12901 | 18.17 | ug/L | # | 42 |
| 21) Acrylonitrile | 3.525 | 53 | 3477 | 1.32 | ug/L | # | 76 |
| 22) Methylene chloride | 3.206 | 49 | 13214 | 1.33 | ug/L | # | 71 |
| 23) Carbon disulfide | 2.882 | 76 | 184207 | 8.12 | ug/L | # | 92 |
| 24) Methyl tert-butyl ethe... | 3.615 | 73 | 20672 | 1.37 | ug/L | | 89 |
| 25) TRANS 1,2-DICHLOROETHENE | 3.567 | 61 | 10717 | 0.96 | ug/L | | 85 |
| 26) 1,1-Dichloroethane | 4.177 | 63 | 13410 | 0.96 | ug/L | | 95 |
| 28) Vinyl acetate | 4.305 | 43 | 181441 | 13.98 | ug/L | | 88 |
| 30) Di isopropyl ether | 4.357 | 45 | 28140 | 1.42 | ug/L | | 82 |
| 31) 2-Butanone (MEK) | 5.052 | 43 | 44203 | 11.87 | ug/L | | 85 |
| 33) t-Butyl ethyl ether | 4.874 | 59 | 26017 | 2.35 | ug/L | | 92 |
| 34) cis-1,2-Dichloroethene | 4.998 | 61 | 10120 | 1.03 | ug/L | | 99 |
| 35) 2,2-Dichloropropane | 4.998 | 77 | 8884 | 1.11 | ug/L | # | 100 |
| 36) Ethyl acetate | 5.177 | 43 | 8113 | 1.39 | ug/L | | 100 |
| 37) Bromochloromethane | 5.297 | 49 | 5943 | 1.26 | ug/L | # | 73 |
| 38) Tetrahydrofuran | 5.402 | 42 | 3229 | 1.54 | ug/L | # | 64 |
| 39) Chloroform | 5.426 | 83 | 11888 | 0.83 | ug/L | # | 45 |
| 41) tert-Butyl formate | 5.512 | 59 | 3785 | 4.22 | ug/L | # | 5 |
| 42) 1,1,1-Trichloroethane | 5.646 | 97 | 9392 | 0.74 | ug/L | | 97 |
| 43) Cyclohexane | 5.718 | 56 | 24610 | 0.43 | ug/L | # | 2 |
| 44) Carbon tetrachloride | 5.856 | 117 | 7864 | 0.68 | ug/L | # | 1 |
| 45) 1,1-Dichloropropene | 5.851 | 75 | 8246 | 0.73 | ug/L | | 97 |
| 46) Benzene | 6.090 | 78 | 27742 | 0.82 | ug/L | | 91 |
| 48) T-AMYLMETHYL ETHER | 6.278 | 73 | 20750 | 2.82 | ug/L | | 91 |
| 51) 1,2-Dichloroethane | 6.105 | 62 | 10469 | 1.14 | ug/L | | 88 |
| 53) Trichloroethene | 6.847 | 95 | 6263 | 0.79 | ug/L | | 98 |
| 54) Methylcyclohexane | 7.065 | 83 | 8078 | 0.86 | ug/L | # | 62 |
| 55) 1,2-Dichloropropane | 7.075 | 63 | 8001 | 1.08 | ug/L | # | 76 |

GTD 4/28/2022

620

Data Path : M:\1\data\G012422\
Data File : G22V024012.D
Acq On : 24 Jan 2022 10:03 am
Operator :
Sample : 8260 STD 1.0PPB Inst : GCMSVOA7
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jan 24 10:25:34 2022
Quant Method : M:\1\methods\GS091521.M
Quant Title : 8260 SIM/SCAN 09/21/18
QLast Update : Fri Dec 03 12:41:03 2021
Response via : Initial Calibration

| | Compound | R.T. | QIon | Response | Conc | Units | | Dev(Min) |
|---|---|---|---|---|---|---|---|---|
| 56) | Dibromomethane | 7.200 | 93 | 4152 | 0.92 | ug/L | | 99 |
| 57) | 1,4-Dioxane | 7.283 | 88 | 522m | 4.56 | ug/L | | |
| 58) | Bromodichloromethane | 7.385 | 83 | 9097 | 0.92 | ug/L | | 95 |
| 59) | 2-Chloroethyl vinyl ether | 7.735 | 63 | 32471 | 11.26 | ug/L | | 79 |
| 60) | MIBK | 8.052 | 43 | 89995 | 15.96 | ug/L | | 91 |
| 61) | cis-1,3-Dichloropropene | 7.868 | 75 | 11784 | 1.02 | ug/L | | 93 |
| 62) | Toluene | 8.225 | 91 | 29655 | 1.00 | ug/L | | 98 |
| 63) | trans-1,3-Dichloropropene | 8.454 | 75 | 9458 | 1.29 | ug/L | | 97 |
| 65) | 1,1,2-Trichloroethane | 8.633 | 97 | 6072 | 0.93 | ug/L | | 92 |
| 66) | 2-Hexanone (MBK) | 8.916 | 43 | 63847 | 15.41 | ug/L | | 92 |
| 67) | Tetrachloroethene | 8.797 | 166 | 7173 | 0.83 | ug/L | | 95 |
| 68) | 1,3-Dichloropropane | 8.807 | 76 | 10892 | 1.00 | ug/L | | 96 |
| 69) | Dibromochloromethane | 9.035 | 129 | 6936 | 0.87 | ug/L | | 89 |
| 70) | 1,2-Dibromoethane | 9.145 | 107 | 6126 | 0.89 | ug/L | # | 99 |
| 73) | Chlorobenzene | 9.657 | 112 | 18597 | 0.80 | ug/L | | 96 |
| 74) | 1,1,1,2-Tetrachloroethane | 9.743 | 131 | 6498 | 0.77 | ug/L | | 96 |
| 75) | Ethylbenzene | 9.784 | 91 | 30970 | 0.89 | ug/L | | 96 |
| 76) | m/p-Xylenes | 9.902 | 91 | 51178 | 1.93 | ug/L | | 99 |
| 77) | o-Xylene | 10.300 | 91 | 27018 | 1.03 | ug/L | | 97 |
| 78) | Styrene | 10.309 | 104 | 21797 | 0.96 | ug/L | | 90 |
| 79) | Bromoform | 10.477 | 173 | 4617 | 0.77 | ug/L | | 99 |
| 80) | Isopropylbenzene | 10.676 | 105 | 30734 | 0.87 | ug/L | | 97 |
| 82) | 1,1,2,2-Tetrachloroethane | 10.961 | 83 | 8353 | 0.84 | ug/L | | 97 |
| 83) | 1,4-Dichloro-2-butene(... | 11.020 | 53 | 2784 | 1.12 | ug/L | | 87 |
| 84) | Bromobenzene | 10.966 | 77 | 16426 | 1.06 | ug/L | | 80 |
| 85) | 1,2,3-Trichloropropane | 10.998 | 75 | 9905m | 0.93 | ug/L | | |
| 86) | n-Propylbenzene | 11.093 | 91 | 36651 | 0.92 | ug/L | | 99 |
| 87) | 2-Chlorotoluene | 11.170 | 91 | 22131 | 0.93 | ug/L | | 99 |
| 88) | 1,3,5-Trimethylbenzene | 11.274 | 105 | 26882 | 0.93 | ug/L | | 97 |
| 89) | 4-Chlorotoluene | 11.278 | 91 | 27875 | 1.01 | ug/L | | 90 |
| 91) | tert-Butylbenzene | 11.595 | 119 | 22825 | 0.85 | ug/L | | 95 |
| 92) | 1,2,4-Trimethylbenzene | 11.645 | 105 | 28410 | 0.94 | ug/L | | 85 |
| 93) | sec-Butylbenzene | 11.822 | 105 | 32594 | 0.85 | ug/L | | 99 |
| 94) | 1,3-Dichlorobenzene | 11.917 | 146 | 17844 | 0.98 | ug/L | | 99 |
| 95) | p-Isopropyltoluene | 11.967 | 119 | 29969 | 0.94 | ug/L | | 96 |
| 96) | 1,4-Dichlorobenzene | 12.008 | 146 | 17824 | 0.93 | ug/L | # | 70 |
| 97) | 1,2,3-Trimethylbenzene | 12.066 | 105 | 29352 | 0.95 | ug/L | # | 100 |
| 98) | n-Butylbenzene | 12.379 | 91 | 27802 | 0.93 | ug/L | | 97 |
| 99) | 1,2-Dichlorobenzene | 12.374 | 146 | 16723 | 1.00 | ug/L | | 96 |
| 100) | 1,2-Dibromo-3-chloropr... | 13.149 | 75 | 1934 | 0.94 | ug/L | | 94 |
| 101) | 1,3,5-Trichlorobenzene | 13.380 | 180 | 14142 | 0.98 | ug/L | | 99 |
| 102) | 1,2,4-Trichlorobenzene | 13.995 | 180 | 14387 | 1.12 | ug/L | | 97 |
| 103) | Hexachlorobutadiene | 14.181 | 225 | 6404 | 0.84 | ug/L | | 99 |
| 104) | Naphthalene | 14.231 | 128 | 35219 | 1.05 | ug/L | | 99 |
| 105) | 1,2,3-Trichlorobenzene | 14.475 | 180 | 14024 | 1.12 | ug/L | | 100 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

GTD 4/28/2022

Quantitation Report (QT Reviewed)



Data Path : M:\1\data\G011422\
Data File : G22V014015.D
Acq On : 14 Jan 2022 9:49 am
Operator :
Sample : 22A0721-05 Inst : GCMSVOA7
Misc :
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jan 14 10:08:23 2022
Quant Method : M:\1\methods\GS091521.M
Quant Title : 8260 SIM/SCAN 09/21/18
QLast Update : Fri Dec 03 12:41:03 2021
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Pentafluorobenzene | 5.723 | 168 | 711459 | 30.00 | ug/L | 0.00 |
| 49) 1,4-Difluorobenzene - ... | 6.560 | 114 | 1163115 | 30.00 | ug/L | 0.00 |
| 71) Chlorobenzene-d5 ISTD | 9.630 | 82 | 476537 | 30.00 | ug/L | 0.00 |
| 90) 1,4-Dichlorobenzene-d4... | 11.980 | 152 | 515255 | 30.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 2) 1,2-Dichloroethane-d4 | 6.013 | 65 | 328916 | 26.73 | ug/L | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 106.92% | | | |
| 50) Toluene SS | 8.154 | 98 | 1016083 | 24.15 | ug/L | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 96.60% | | | |
| 72) 4-Bromofluorobenzene SS | 10.816 | 95 | 369178 | 25.70 | ug/L | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 102.80% | | | |
| Target Compounds | | | | | | Qvalue |
| 7) Bromomethane | 1.794 | 94 | 135 | Below Cal | # | 1 |
| 14) Acetone | 2.727 | 43 | 5904 | 2.05 | ug/L | 97 |
| 17) Iodomethane | 2.810 | 142 | 3336 | 0.36 | ug/L | 90 |
| 25) TRANS 1,2-DICHLOROETHENE | 3.577 | 61 | 2514 | 0.22 | ug/L | 98 |
| 34) cis-1,2-Dichloroethene | 4.998 | 61 | 6357 | 0.65 | ug/L # | 68 |
| 43) Cyclohexane | 5.718 | 56 | 10800 | Below Cal | # | 1 |
| 53) Trichloroethene | 6.847 | 95 | 14796 | 1.97 | ug/L | 93 |
| 67) Tetrachloroethene | 8.797 | 166 | 861307 | 105.54 | ug/L ✓ | 97 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

GTD 4/28/2022

DUSR Calculations Sheet

**Sample ID:** 360175-HA002001
**TC:** tetrachloroethylene
**ICAL Level:** 3
**Val File Result for TC:** 0.14 mg/kg

## Ical Calc

| | |
|---|---|
| **Area TC** | 7173 |
| **Area IS** | 1228435 |
| **Conc TC** | 1 |
| **Conc IS** | 30 |
| **RRF =** | 0.175174 |

| | |
|---|---|
| **1** | 0.172 |
| **2** | 0.245 |
| **3** | 0.175 |
| **4** | 0.209 |
| **5** | 0.227 |
| **6** | 0.212 |
| **7** | 0.216 |
| **8** | 0.245 |
| **9** | 0.223 |
| **10** | 0.208 |
| **Avg RRF =** | 0.2132 |
| **Std Dev =** | 0.024765 |
| **%RSD =** | 11.6157 |

## Sample Calc

| | |
|---|---|
| **Area TC** | 861307 |
| **Area IS** | 1163115 |
| **Conc IS** | 30 |
| **Avg RRF** | 0.2132 |
| **Conc TC =** | 104.2004 µg/L |

| | |
|---|---|
| **DF** | 1 |
| **Solids** | 84.14 |
| **Initial Wt** | 9.17 |
| **Final Vol** | 0.01 |
| Conc TC = | 0.135051 mg/kg |

Notes:
Green = matched reported value
Red = did not match reported value

GTD 4/28/2022

# VOCs

**NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD**
**Project:** Irvington Rugs and Cleaners March 2022
**Method:** 8260D
**Laboratory:** Con-test **SDG(s):** 22C1692
**Date:** 4/27/2022
**Reviewer:** Gabrielle Davis

**Review Level** [X] NYSDEC DUSR [ ] USEPA Region II Guideline

1. ☑ **Case Narrative Review and COC/Data Package Completeness** COMMENTS
   Were problems noted? Yes, see attached
   Are Field Sample IDs and Locations assigned correctly? YES NO (circle one)
   Were all the samples on the COC analyzed for the requested analyses? YES NO (circle one)
   Sample 22C1692-01 should be 360175-DP002011
2. ☑ **Holding time and Sample Collection**
   All samples were analyzed within the 14 day holding time. YES NO (circle one)
3. ☑ **QC Blanks**
   Are method blanks free of contamination? YES NO (circle one)

   Are Trip blanks free of contamination? YES NO (circle one)

   Are Rinse blanks free of contamination? YES NO NA (circle one)
4. ☑ **Instrument Tuning – Data Package Narrative Review**
   Did the laboratory narrative identify any results that were not within method criteria? YES NO (circle one)
   If yes, use professional judgment to evaluate data and qualify results if needed
5. ☑ **Instrument Calibration – Data Package Narrative Review**
   Did the laboratory narrative identify compounds that were not within criteria in the initial and/or continuing calibration standards? YES NO (circle one)

   Initial Calibration %RSD = 20% **(30% for 1,1-DCE, chloroform, 1,2-DCP, toluene, ethylbenzene, VC)**
   Initial Avg RRF and Continuing RRF should be ≥ 0.05 and 0.10 for Chloromethane, 1,1-Dichloroethane, Bromoform and 0.30 for Chlorobenzene and 1,1,2,2-Tetrachloroethane

   Continuing Calibration %D = 20%

   Did the laboratory qualify results based on initial or continuing calibration exceedances? YES NO See attached - subset J-/UJ, CCV%D
   If yes to above, use professional judgment to evaluate data and qualify results if needed
6. ☑ **Internal Standards – Data Package Narrative Review**
   (Area Limits = -50% to +100%, RTs within 30 seconds of daily CCAL standard (or ICAL mid-point if samples follow ICAL)
   Did the laboratory narrative identify any sample internal standards that were not within criteria? YES NO (circle one)

   Did the laboratory qualify results based on internal standard exceedances? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed
7. ☑ **Surrogate Recovery** - Region II limits (water 80-120%, soil 70-130%)

   Were all results within Region II limits? YES NO (circle one)
8. ☑ **Matrix Spike** - Region II limits (water and soil 70-130%, water RPD 20, soil RPD 35)

   Were MS/MSDs submitted/analyzed? YES NO

   Were all results within the Region II limits? YES NO NA (circle one) See attached - subset UJ, MSL

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9. ☑ **Duplicates** - Region II Limits (water RPD 50, soil RPD 100)

Were Field Duplicates submitted/analyzed? YES NO

Were all results within Region II limits? (soil RPD<100, water RPD<50) YES NO NA

Both ND or below RL for all results

10. ☑ **Laboratory Control Sample Results** - Region II (Water and soil 70-130%)

Were all results were within Region II control limits? YES NO (circle one)

11. ☑ **Reporting Limits:** Were samples analyzed at a dilution? YES NO (circle one)

Samples 360175-DW001-1 analyzed at 2X dilution - ND have elevated RLs

12. ☑ **Raw Data Review and Calculation Checks**

13. ☑ **Electronic Data Review and Edits**

Does the EDD match the Form Is? YES NO (circle one)

See attached

14. ☑ **Tables and TIC Review**

**Table 1** (Samples and Analytical Methods)
**Table 2** (Analytical Results)
**Table 3** (Qualification Actions)
Were all tables produced and reviewed? YES NO (circle one)

**Table 4** (TICs) Did lab report TICs? YES NO (circle one)

GTD 4/28/2022

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

**SW-846 6010D**

**Qualifications:**

**MS-19**

Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.

**Analyte & Samples(s) Qualified:**

**Calcium**
22C1692-03[360175-DP005011], B305111-MSD1

**Magnesium**
22C1692-03[360175-DP005011], B305111-MSD1

**Sodium**
22C1692-03[360175-DP005011], B305111-MSD1

**V-20**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

**Analyte & Samples(s) Qualified:**

**Beryllium**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D]

**Thallium**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D]

**SW-846 7470A**

**Qualifications:**

**B**

Analyte is found in the associated laboratory blank as well as in the sample.

**Analyte & Samples(s) Qualified:**

**Mercury**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-04[360175-DP005011D], B305219-BLK1

**L-07**

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.

**Analyte & Samples(s) Qualified:**

**Mercury**
B305408-BSD1

**SW-846 8081B**

**Qualifications:**

**V-06**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

**Analyte & Samples(s) Qualified:**

**Hexachlorobenzene**
B304396-BS1, B304396-BSD1, B304396-MS1, B304396-MSD1

**SW-846 8260D**

**Qualifications:**

**MS-07A**

Matrix spike and spike duplicate recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possibility of matrix effects that lead to low bias or non-homogeneous sample aliquot cannot be eliminated.

**Analyte & Samples(s) Qualified:**

**Naphthalene**
22C1692-03[360175-DP005011], B304257-MS1, B304257-MSD1 okay - see attached for MS review

GTD 4/28/2022

con-test®
A Pace Analytical® Laboratory

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

**MS-24**

Either matrix spike or matrix spike duplicate is outside of control limits, but the other is within limits. Analysis is in control based on laboratory fortified blank recovery.

**Analyte & Samples(s) Qualified:**

**1,2-Dibromo-3-chloropropane (DB**
B304257-MSD1

See attached for MS/MSD review

**2-Hexanone (MBK)**
B304257-MSD1

**Acetone**
B304257-MSD1

**Bromomethane**
B304257-MSD1

**tert-Butyl Alcohol (TBA)**
B304257-MSD1

---

**RL-11**

Elevated reporting limit due to high concentration of target compounds.

**Analyte & Samples(s) Qualified:**

2X DF - ND elevated RLs

22C1692-06[360175-DW001-1]

---

**V-05**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

**Analyte & Samples(s) Qualified:**

**1,4-Dioxane**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], 22C1692-05[360175-TB32222], 22C1692-06[360175-DW001-1], 22C1692-07[360175-DW002-2], B304257-BLK1, B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1 UJ, CCV%D

**2-Butanone (MEK)**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], 22C1692-05[360175-TB32222], 22C1692-06[360175-DW001-1], 22C1692-07[360175-DW002-2], B304257-BLK1, B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1 UJ, CCV%D

**2-Hexanone (MBK)**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], 22C1692-05[360175-TB32222], 22C1692-06[360175-DW001-1], 22C1692-07[360175-DW002-2], B304257-BLK1, B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1 UJ, CCV%D

**Acetone**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], 22C1692-05[360175-TB32222], 22C1692-06[360175-DW001-1], 22C1692-07[360175-DW002-2], B304257-BLK1, B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1 UJ, CCV%D

**Acrylonitrile**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], 22C1692-05[360175-TB32222], 22C1692-06[360175-DW001-1], 22C1692-07[360175-DW002-2], B304257-BLK1, B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1 UJ, CCV%D

**Naphthalene**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], 22C1692-05[360175-TB32222], 22C1692-06[360175-DW001-1], 22C1692-07[360175-DW002-2], B304257-BLK1, B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1 J-/UJ, CCV%D

**tert-Butyl Alcohol (TBA)**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], 22C1692-05[360175-TB32222], 22C1692-06[360175-DW001-1], 22C1692-07[360175-DW002-2], B304257-BLK1, B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1 J-/UJ, CCV%D

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**V-20**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

**Analyte & Samples(s) Qualified:**

**Bromomethane**
B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1 Not associated with samples

**SW-846 8270E**

**Qualifications:**

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**L-04**

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

**Analyte & Samples(s) Qualified:**

**N-Nitrosodimethylamine**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], B304402-BLK1, B304402-BS1, B304402-BSD1

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B304257 - SW-846 5030B** | | | | | | | | | | | | |
| Qual'd sample and FD | | | | | | | | | | | | |
| **Matrix Spike (B304257-MS1)** | | **Source: 22C1692-03** | | | Prepared & Analyzed: 03/28/22 | | | | | | | |
| p-Isopropyltoluene (p-Cymene) | 10.6 | 1.0 | 0.097 | µg/L | 10.0 | ND | 106 | | 70-130 | | | |
| Methyl Acetate | 7.85 | 1.0 | 0.45 | µg/L | 10.0 | ND | 78.5 | | 70-130 | | | |
| Methyl tert-Butyl Ether (MTBE) | 9.83 | 1.0 | 0.17 | µg/L | 10.0 | ND | 98.3 | | 70-130 | | | |
| Methyl Cyclohexane | 11.0 | 1.0 | 0.24 | µg/L | 10.0 | ND | 110 | | 70-130 | | | |
| Methylene Chloride | 9.51 | 5.0 | 0.23 | µg/L | 10.0 | ND | 95.1 | | 70-130 | | | |
| 4-Methyl-2-pentanone (MIBK) | 78.9 | 10 | 1.3 | µg/L | 100 | ND | 78.9 | | 70-130 | | | |
| **Naphthalene** UJ, MSL | 6.14 | 2.0 | 0.24 | µg/L | 10.0 | ND | **61.4** | * | 70-130 | | | MS-07A, V-05 |
| n-Propylbenzene | 10.9 | 1.0 | 0.086 | µg/L | 10.0 | ND | 109 | | 70-130 | | | |
| Styrene | 11.5 | 1.0 | 0.11 | µg/L | 10.0 | ND | 115 | | 70-130 | | | |
| 1,1,1,2-Tetrachloroethane | 11.4 | 1.0 | 0.18 | µg/L | 10.0 | ND | 114 | | 70-130 | | | |
| 1,1,2,2-Tetrachloroethane | 9.94 | 0.50 | 0.13 | µg/L | 10.0 | ND | 99.4 | | 70-130 | | | |
| Tetrachloroethylene | 12.4 | 1.0 | 0.19 | µg/L | 10.0 | 0.940 | 115 | | 70-130 | | | |
| Tetrahydrofuran | 8.33 | 10 | 0.49 | µg/L | 10.0 | ND | 83.3 | | 70-130 | | | J |
| Toluene | 11.4 | 1.0 | 0.22 | µg/L | 10.0 | ND | 114 | | 70-130 | | | |
| 1,2,3-Trichlorobenzene | 7.52 | 5.0 | 0.30 | µg/L | 10.0 | ND | 75.2 | | 70-130 | | | |
| 1,2,4-Trichlorobenzene | 7.95 | 1.0 | 0.25 | µg/L | 10.0 | ND | 79.5 | | 70-130 | | | |
| 1,3,5-Trichlorobenzene | 9.25 | 1.0 | 0.21 | µg/L | 10.0 | ND | 92.5 | | 70-130 | | | |
| 1,1,1-Trichloroethane | 11.1 | 1.0 | 0.17 | µg/L | 10.0 | ND | 111 | | 70-130 | | | |
| 1,1,2-Trichloroethane | 10.2 | 1.0 | 0.18 | µg/L | 10.0 | ND | 102 | | 70-130 | | | |
| Trichloroethylene | 11.5 | 1.0 | 0.19 | µg/L | 10.0 | 0.280 | 112 | | 70-130 | | | |
| Trichlorofluoromethane (Freon 11) | 10.9 | 2.0 | 0.18 | µg/L | 10.0 | ND | 109 | | 70-130 | | | |
| 1,2,3-Trichloropropane | 8.46 | 2.0 | 0.28 | µg/L | 10.0 | ND | 84.6 | | 70-130 | | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 12.4 | 1.0 | 0.23 | µg/L | 10.0 | ND | 124 | | 70-130 | | | |
| 1,2,4-Trimethylbenzene | 10.6 | 1.0 | 0.20 | µg/L | 10.0 | ND | 106 | | 70-130 | | | |
| 1,3,5-Trimethylbenzene | 11.2 | 1.0 | 0.11 | µg/L | 10.0 | ND | 112 | | 70-130 | | | |
| Vinyl Chloride | 11.6 | 2.0 | 0.21 | µg/L | 10.0 | ND | 116 | | 70-130 | | | |
| m+p Xylene | 22.4 | 2.0 | 0.46 | µg/L | 20.0 | ND | 112 | | 70-130 | | | |
| o-Xylene | 11.3 | 1.0 | 0.23 | µg/L | 10.0 | ND | 113 | | 70-130 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | *21.2* | | | µg/L | 25.0 | | 85.0 | | 70-130 | | | |
| Surrogate: Toluene-d8 | *24.7* | | | µg/L | 25.0 | | 98.8 | | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | *24.1* | | | µg/L | 25.0 | | 96.3 | | 70-130 | | | |
| **Matrix Spike Dup (B304257-MSD1)** | | **Source: 22C1692-03** | | | Prepared & Analyzed: 03/28/22 | | | | | | | |
| **Acetone** UJ, MSL | 67.5 | 50 | 2.0 | µg/L | 100 | ND | **67.5** | * | 70-130 | 4.77 | 30 | MS-24, V-05 |
| Acrylonitrile | 7.33 | 5.0 | 0.55 | µg/L | 10.0 | ND | 73.3 | | 70-130 | 2.96 | 30 | V-05 |
| tert-Amyl Methyl Ether (TAME) | 10.6 | 0.50 | 0.14 | µg/L | 10.0 | ND | 106 | | 70-130 | 2.47 | 30 | |
| Benzene | 11.2 | 1.0 | 0.20 | µg/L | 10.0 | ND | 112 | | 70-130 | 3.82 | 30 | |
| Bromobenzene | 10.2 | 1.0 | 0.15 | µg/L | 10.0 | ND | 102 | | 70-130 | 4.12 | 30 | |
| Bromochloromethane | 10.2 | 1.0 | 0.31 | µg/L | 10.0 | ND | 102 | | 70-130 | 2.79 | 30 | |
| Bromodichloromethane | 10.5 | 0.50 | 0.18 | µg/L | 10.0 | ND | 105 | | 70-130 | 5.08 | 30 | |
| Bromoform | 9.92 | 1.0 | 0.38 | µg/L | 10.0 | ND | 99.2 | | 70-130 | 1.50 | 30 | |
| **Bromomethane** High bias, sample ND - no qual | 13.6 | 2.0 | 1.5 | µg/L | 10.0 | ND | **136** | * | 70-130 | 7.17 | 30 | MS-24, V-20 |
| 2-Butanone (MEK) | 70.3 | 20 | 1.6 | µg/L | 100 | ND | 70.3 | | 70-130 | 6.15 | 30 | V-05 |
| **tert-Butyl Alcohol (TBA)** UJ, MSL | 69.3 | 20 | 4.7 | µg/L | 100 | ND | **69.3** | * | 70-130 | 11.8 | 30 | MS-24, V-05 |
| n-Butylbenzene | 10.0 | 1.0 | 0.15 | µg/L | 10.0 | ND | 100 | | 70-130 | 4.69 | 30 | |
| sec-Butylbenzene | 11.3 | 1.0 | 0.11 | µg/L | 10.0 | ND | 113 | | 70-130 | 2.78 | 30 | |
| tert-Butylbenzene | 11.8 | 1.0 | 0.13 | µg/L | 10.0 | ND | 118 | | 70-130 | 4.59 | 30 | |
| tert-Butyl Ethyl Ether (TBEE) | 9.84 | 0.50 | 0.15 | µg/L | 10.0 | ND | 98.4 | | 70-130 | 2.16 | 30 | |
| Carbon Disulfide | 123 | 5.0 | 1.4 | µg/L | 100 | ND | 123 | | 70-130 | 4.18 | 30 | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B304257 - SW-846 5030B** | | | | | | | | | | | | |
| **Matrix Spike Dup (B304257-MSD1)** | | **Source: 22C1692-03** | | | Prepared & Analyzed: 03/28/22 | | | | | | | |
| Carbon Tetrachloride | 11.3 | 5.0 | 0.16 | µg/L | 10.0 | ND | 113 | | 70-130 | 2.33 | 30 | |
| Chlorobenzene | 11.8 | 1.0 | 0.11 | µg/L | 10.0 | ND | 118 | | 70-130 | 0.0851 | 30 | |
| Chlorodibromomethane | 10.3 | 0.50 | 0.22 | µg/L | 10.0 | ND | 103 | | 70-130 | 3.26 | 30 | |
| Chloroethane | 12.6 | 2.0 | 0.32 | µg/L | 10.0 | ND | 126 | | 70-130 | 3.05 | 30 | |
| Chloroform | 10.6 | 2.0 | 0.17 | µg/L | 10.0 | ND | 106 | | 70-130 | 1.91 | 30 | |
| Chloromethane | 11.3 | 2.0 | 0.52 | µg/L | 10.0 | ND | 113 | | 70-130 | 5.00 | 30 | |
| 2-Chlorotoluene | 11.2 | 1.0 | 0.11 | µg/L | 10.0 | ND | 112 | | 70-130 | 3.46 | 30 | |
| 4-Chlorotoluene | 10.8 | 1.0 | 0.12 | µg/L | 10.0 | ND | 108 | | 70-130 | 1.69 | 30 | |
| **1,2-Dibromo-3-chloropropane (DBCP)** UJ, MSL | 6.96 | 5.0 | 0.80 | µg/L | 10.0 | ND | **69.6** | * | 70-130 | 15.4 | 30 | MS-24 |
| 1,2-Dibromoethane (EDB) | 9.63 | 0.50 | 0.17 | µg/L | 10.0 | ND | 96.3 | | 70-130 | 0.834 | 30 | |
| Dibromomethane | 9.87 | 1.0 | 0.35 | µg/L | 10.0 | ND | 98.7 | | 70-130 | 2.46 | 30 | |
| 1,2-Dichlorobenzene | 11.4 | 1.0 | 0.12 | µg/L | 10.0 | ND | 114 | | 70-130 | 4.86 | 30 | |
| 1,3-Dichlorobenzene | 11.1 | 1.0 | 0.12 | µg/L | 10.0 | ND | 111 | | 70-130 | 2.28 | 30 | |
| 1,4-Dichlorobenzene | 10.7 | 1.0 | 0.13 | µg/L | 10.0 | ND | 107 | | 70-130 | 1.89 | 30 | |
| trans-1,4-Dichloro-2-butene | 7.29 | 2.0 | 1.6 | µg/L | 10.0 | ND | 72.9 | | 70-130 | 8.16 | 30 | |
| Dichlorodifluoromethane (Freon 12) | 11.1 | 2.0 | 0.19 | µg/L | 10.0 | ND | 111 | | 70-130 | 4.04 | 30 | |
| 1,1-Dichloroethane | 10.4 | 1.0 | 0.14 | µg/L | 10.0 | ND | 104 | | 70-130 | 2.64 | 30 | |
| 1,2-Dichloroethane | 9.07 | 1.0 | 0.31 | µg/L | 10.0 | ND | 90.7 | | 70-130 | 1.56 | 30 | |
| 1,1-Dichloroethylene | 11.2 | 1.0 | 0.14 | µg/L | 10.0 | ND | 112 | | 70-130 | 1.35 | 30 | |
| cis-1,2-Dichloroethylene | 10.5 | 1.0 | 0.15 | µg/L | 10.0 | 0.270 | 103 | | 70-130 | 3.97 | 30 | |
| trans-1,2-Dichloroethylene | 10.3 | 1.0 | 0.17 | µg/L | 10.0 | ND | 103 | | 70-130 | 2.95 | 30 | |
| 1,2-Dichloropropane | 10.4 | 1.0 | 0.18 | µg/L | 10.0 | ND | 104 | | 70-130 | 4.31 | 30 | |
| 1,3-Dichloropropane | 9.75 | 0.50 | 0.13 | µg/L | 10.0 | ND | 97.5 | | 70-130 | 4.19 | 30 | |
| 2,2-Dichloropropane | 9.33 | 1.0 | 0.33 | µg/L | 10.0 | ND | 93.3 | | 70-130 | 4.49 | 30 | |
| 1,1-Dichloropropene | 11.0 | 2.0 | 0.15 | µg/L | 10.0 | ND | 110 | | 70-130 | 3.70 | 30 | |
| cis-1,3-Dichloropropene | 9.71 | 0.50 | 0.16 | µg/L | 10.0 | ND | 97.1 | | 70-130 | 3.35 | 30 | |
| trans-1,3-Dichloropropene | 8.89 | 0.50 | 0.17 | µg/L | 10.0 | ND | 88.9 | | 70-130 | 3.08 | 30 | |
| Diethyl Ether | 9.48 | 2.0 | 0.18 | µg/L | 10.0 | ND | 94.8 | | 70-130 | 0.847 | 30 | |
| Diisopropyl Ether (DIPE) | 9.43 | 0.50 | 0.13 | µg/L | 10.0 | ND | 94.3 | | 70-130 | 3.12 | 30 | |
| 1,4-Dioxane | 70.8 | 50 | 21 | µg/L | 100 | ND | 70.8 | | 70-130 | 11.9 | 30 | V-05 |
| Ethylbenzene | 11.5 | 1.0 | 0.21 | µg/L | 10.0 | ND | 115 | | 70-130 | 1.58 | 30 | |
| Hexachlorobutadiene | 10.9 | 0.60 | 0.46 | µg/L | 10.0 | ND | 109 | | 70-130 | 8.71 | 30 | |
| **2-Hexanone (MBK)** UJ, MSL | 69.0 | 10 | 1.1 | µg/L | 100 | ND | **69.0** | * | 70-130 | 4.77 | 30 | MS-24, V-05 |
| Isopropylbenzene (Cumene) | 12.0 | 1.0 | 0.11 | µg/L | 10.0 | ND | 120 | | 70-130 | 1.85 | 30 | |
| p-Isopropyltoluene (p-Cymene) | 11.2 | 1.0 | 0.097 | µg/L | 10.0 | ND | 112 | | 70-130 | 4.86 | 30 | |
| Methyl Acetate | 7.18 | 1.0 | 0.45 | µg/L | 10.0 | ND | 71.8 | | 70-130 | 8.92 | 30 | |
| Methyl tert-Butyl Ether (MTBE) | 9.85 | 1.0 | 0.17 | µg/L | 10.0 | ND | 98.5 | | 70-130 | 0.203 | 30 | |
| Methyl Cyclohexane | 11.5 | 1.0 | 0.24 | µg/L | 10.0 | ND | 115 | | 70-130 | 4.27 | 30 | |
| Methylene Chloride | 9.65 | 5.0 | 0.23 | µg/L | 10.0 | ND | 96.5 | | 70-130 | 1.46 | 30 | |
| 4-Methyl-2-pentanone (MIBK) | 75.5 | 10 | 1.3 | µg/L | 100 | ND | 75.5 | | 70-130 | 4.35 | 30 | |
| **Naphthalene** Already qual'd UJ, MSL | 6.45 | 2.0 | 0.24 | µg/L | 10.0 | ND | **64.5** | * | 70-130 | 4.92 | 30 | MS-07A, V-05 |
| n-Propylbenzene | 11.3 | 1.0 | 0.086 | µg/L | 10.0 | ND | 113 | | 70-130 | 3.79 | 30 | |
| Styrene | 11.9 | 1.0 | 0.11 | µg/L | 10.0 | ND | 119 | | 70-130 | 2.91 | 30 | |
| 1,1,1,2-Tetrachloroethane | 11.4 | 1.0 | 0.18 | µg/L | 10.0 | ND | 114 | | 70-130 | 0.264 | 30 | |
| 1,1,2,2-Tetrachloroethane | 9.73 | 0.50 | 0.13 | µg/L | 10.0 | ND | 97.3 | | 70-130 | 2.14 | 30 | |
| Tetrachloroethylene | 12.9 | 1.0 | 0.19 | µg/L | 10.0 | 0.940 | 120 | | 70-130 | 3.86 | 30 | |
| Tetrahydrofuran | 7.88 | 10 | 0.49 | µg/L | 10.0 | ND | 78.8 | | 70-130 | 5.55 | 30 | J |
| Toluene | 11.8 | 1.0 | 0.22 | µg/L | 10.0 | ND | 118 | | 70-130 | 3.18 | 30 | |
| 1,2,3-Trichlorobenzene | 8.07 | 5.0 | 0.30 | µg/L | 10.0 | ND | 80.7 | | 70-130 | 7.06 | 30 | |
| 1,2,4-Trichlorobenzene | 8.24 | 1.0 | 0.25 | µg/L | 10.0 | ND | 82.4 | | 70-130 | 3.58 | 30 | |

GTD 4/28/2022

# Response Factor Report GCMSVOA3

Method Path : C:\msdchem\1\methods\
Method File : C051619.M
Title : 8260 WATER 5MLS VOAMS 5973 #3
Last Update : Fri May 17 05:29:37 2019
Response Via : Initial Calibration

Calibration Files
0.4 =C1913608.D 0.5 =C1913609.D 1.0 =C1913610.D 2.0 =C1913611.D 5.0 =C1913612.D 10 =C1913613.D 20 =C1913614.D
50 =C1913615.D 100 =C1913616.D 200 =C1913617.D

| | | Compound | 0.4 | 0.5 | 1.0 | 2.0 | 5.0 | 10 | 20 | 50 | 100 | 200 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) | | PENTAFLUOROBENZENE... | ----------ISTD---------- | | | | | | | | | | | |
| 2) | S | 1,2-DICHLOROET... | 0.570 | 0.573 | 0.559 | 0.566 | 0.578 | 0.571 | 0.565 | 0.552 | 0.559 | 0.550 | 0.564 | 1.65 |
| 3) | | DICHLORODIFLUO... | 0.487 | 0.551 | 0.558 | 0.536 | 0.502 | 0.447 | 0.475 | 0.470 | 0.432 | 0.433 | 0.489 | 9.55 |
| 4) | | DIFLUOROCHLORO... | 0.622 | 0.612 | 0.625 | 0.616 | 0.590 | 0.540 | 0.591 | 0.579 | 0.530 | 0.541 | 0.585 | 6.18 |
| 5) | P | CHLOROMETHANE | | | 0.793 | 0.789 | 0.663 | 0.615 | 0.627 | 0.571 | 0.566 | 0.596 | 0.653 | 13.95 |
| 6) | C | VINYL CHLORIDE | 0.566 | 0.556 | 0.545 | 0.547 | 0.518 | 0.484 | 0.513 | 0.522 | 0.472 | 0.492 | 0.522 | 6.12# |
| 7) | | BROMOMETHANE | | | | 0.337 | 0.321 | 0.248 | 0.233 | 0.288 | 0.266 | 0.301 | 0.285 | 13.40 |
| 8) | | CHLOROETHANE | | 0.313 | 0.334 | 0.366 | 0.299 | 0.256 | 0.263 | 0.272 | 0.248 | 0.243 | 0.288 | 14.77 |
| 9) | | FLUORODICHLORO... | 0.828 | 0.861 | 0.843 | 0.832 | 0.766 | 0.736 | 0.773 | 0.784 | 0.715 | 0.747 | 0.788 | 6.32 |
| 10) | | TRICHLOROFLUOR... | 0.661 | 0.636 | 0.598 | 0.625 | 0.574 | 0.522 | 0.561 | 0.567 | 0.521 | 0.540 | 0.580 | 8.30 |
| 11) | | ETHANOL | | | | 0.012 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.009 | 0.010 | 8.76 |
| 12) | | DI ETHYL ETHER | 0.452 | 0.392 | 0.368 | 0.373 | 0.362 | 0.349 | 0.359 | 0.362 | 0.333 | 0.352 | 0.370 | 8.82 |
| 13) | | ACROLEIN | 0.119 | 0.122 | 0.137 | 0.112 | 0.121 | 0.116 | 0.132 | 0.128 | 0.121 | 0.128 | 0.123 | 6.19 |
| 14) | | ACETONE | | 0.234 | 0.211 | 0.188 | 0.177 | 0.170 | 0.192 | 0.176 | 0.168 | 0.177 | 0.188 | 11.56 |
| 15) | C | 1,1-DICHLOROET... | 0.596 | 0.605 | 0.602 | 0.631 | 0.594 | 0.542 | 0.568 | 0.583 | 0.535 | 0.551 | 0.581 | 5.35# |
| 16) | | 1,1,2-TRICL-1,... | 0.360 | 0.333 | 0.340 | 0.340 | 0.326 | 0.289 | 0.306 | 0.310 | 0.285 | 0.290 | 0.318 | 8.09 |
| 17) | | IODOMETHANE | 0.407 | 0.361 | 0.444 | 0.439 | 0.452 | 0.473 | 0.521 | 0.551 | 0.527 | 0.578 | 0.475 | 14.29 |
| 18) | | ACETONITRILE | | | | | | | | | | | 0.000 | -1.00 |
| 19) | | ALLYL CHLORIDE | | | | | | | | | | | 0.000 | -1.00 |
| 20) | | METHYL ACETATE | | 0.647 | 0.769 | 0.546 | 0.531 | 0.541 | 0.579 | 0.554 | 0.520 | 0.558 | 0.583 | 13.54 |
| 21) | | T-BUTYL ALCOHOL | 0.079 | 0.082 | 0.078 | 0.068 | 0.067 | 0.065 | 0.073 | 0.068 | 0.068 | 0.077 | 0.072 ✓ | 8.39 ✓ |
| 22) | | ACRYLONITRILE | 0.336 | 0.262 | 0.238 | 0.233 | 0.225 | 0.230 | 0.250 | 0.237 | 0.226 | 0.248 | 0.248 | 13.28 |
| 23) | | METHYLENE CHLO... | 0.639 | 0.690 | 0.649 | 0.631 | 0.608 | 0.581 | 0.597 | 0.595 | 0.553 | 0.622 | 0.616 | 6.26 |
| 24) | | CARBON DISULFIDE | 1.219 | 1.196 | 1.135 | 1.157 | 1.125 | 1.069 | 1.136 | 1.107 | 1.020 | 1.035 | 1.120 | 5.76 |
| 25) | | METHYL TERT-BU... | 1.306 | 1.442 | 1.375 | 1.375 | 1.256 | 1.233 | 1.295 | 1.306 | 1.204 | 1.313 | 1.311 | 5.46 |
| 26) | | TRANS 1,2-DICH... | 0.687 | 0.636 | 0.600 | 0.621 | 0.569 | 0.568 | 0.590 | 0.600 | 0.553 | 0.589 | 0.601 | 6.49 |
| 27) | P | 1,1-DICHLOROET... | 0.872 | 0.842 | 0.806 | 0.830 | 0.780 | 0.777 | 0.797 | 0.806 | 0.747 | 0.792 | 0.805 | 4.42 |
| 28) | | VINYL ACETATE | 1.590 | 1.544 | 1.601 | 1.554 | 1.544 | 1.508 | 1.605 | 1.580 | 1.464 | 1.472 | 1.546 | 3.30 |
| 29) | | DI ISOPROYL ETHER | 1.803 | 1.733 | 1.898 | 1.760 | 1.669 | 1.664 | 1.727 | 1.761 | 1.638 | 1.759 | 1.741 | 4.34 |
| 30) | | CHLOROPRENE | | | | | | | | | | | 0.000 | -1.00 |
| 31) | | 2-BUTANONE | 0.348 | 0.349 | 0.346 | 0.327 | 0.330 | 0.318 | 0.360 | 0.333 | 0.319 | 0.348 | 0.338 | 4.18 |
| 32) | | T-BUTYL ETHYL ... | 1.473 | 1.564 | 1.518 | 1.474 | 1.397 | 1.364 | 1.432 | 1.455 | 1.366 | 1.470 | 1.451 | 4.42 |
| 33) | | CIS-1,2-DICHLO... | 0.678 | 0.704 | 0.728 | 0.741 | 0.690 | 0.670 | 0.700 | 0.715 | 0.665 | 0.713 | 0.700 | 3.56 |
| 34) | | 2,2-DICHLOROPR... | 0.685 | 0.677 | 0.633 | 0.617 | 0.564 | 0.543 | 0.546 | 0.606 | 0.559 | 0.600 | 0.603 | 8.51 |
| 35) | | ETHYL ACETATE | | 0.907 | 0.635 | 0.659 | 0.671 | 0.610 | 0.690 | 0.658 | 0.624 | 0.689 | 0.683 | 12.99 |
| 36) | | PROPIONITRILE | | | | | | | | | | | 0.000 | -1.00 |
| 37) | | METHACRYLONITRILE | | | | | | | | | | | 0.000 | -1.00 |
| 38) | | BROMOCHLOROMET... | 0.402 | 0.421 | 0.438 | 0.445 | 0.423 | 0.424 | 0.427 | 0.428 | 0.369 | 0.354 | 0.413 | 7.19 |
| 39) | | TETRAHYDROFURAN | 0.122 | 0.229 | 0.218 | 0.208 | 0.203 | 0.195 | 0.218 | 0.207 | 0.200 | 0.216 | 0.202 | 14.76 |
| 40) | C | CHLOROFORM | 0.696 | 0.772 | 0.799 | 0.783 | 0.745 | 0.720 | 0.742 | 0.754 | 0.699 | 0.751 | 0.746 | 4.54# |
| 41) | | 1,1,1-TRICHLOR... | 0.580 | 0.642 | 0.592 | 0.621 | 0.591 | 0.571 | 0.594 | 0.610 | 0.564 | 0.599 | 0.596 | 3.93 |
| 42) | | CYCLOHEXANE | | | | | 0.814 | 0.689 | 0.700 | 0.709 | 0.650 | 0.673 | 0.706 | 8.09 |
| 43) | | CARBON TETRACH... | 0.468 | 0.488 | 0.535 | 0.525 | 0.496 | 0.477 | 0.493 | 0.519 | 0.480 | 0.515 | 0.500 | 4.55 |

Data Path : C:\msdchem\1\data_ARCHIVE_2019 RUN DATES\C051619\
Data File : C1913610.D
Acq On : 16 May 2019 11:05 am
Operator :
Sample : 8260STD 1.0PPB 1905273 Inst : GCMSVOA3
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 16 13:40:32 2019
Quant Method : C:\msdchem\1\methods\C053018.M
Quant Title : 8260 WATER 5MLS VOAMS 5973 #3
QLast Update : Wed Mar 13 07:34:04 2019
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | | Dev(Min) |
|---|---|---|---|---|---|---|---|
| Internal Standards | | | | | | | |
| 1) PENTAFLUOROBENZENE - ISTD | 4.194 | 168 | 160171 | 30.00 | UG/L | | 0.00 |
| 48) 1,4-DIFLUOROBENZENE - ... | 4.919 | 114 | 239266 | 30.00 | UG/L | | 0.00 |
| 70) CHLOROBENZENE-D5 ISTD | 7.755 | 82 | 119505 | 30.00 | UG/L | | 0.00 |
| 89) 1,4-DICHLOROBENZENE-D4... | 10.050 | 152 | 114678 | 30.00 | UG/L | # | 0.00 |
| System Monitoring Compounds | | | | | | | |
| 2) 1,2-DICHLOROETHANE-D4 SS | 4.470 | 65 | 74574 | 18.15 | UG/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 72.60% | | | | |
| 49) TOLUENE SS | 6.355 | 98 | 237299 | 23.89 | UG/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 95.56% | | | | |
| 71) 4-BROMOFLUOROBENZENE SS | 8.912 | 95 | 89028 | 23.81 | UG/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 95.24% | | | | |
| Target Compounds | | | | | | | Qvalue |
| 3) DICHLORODIFLUOROMETHANE | 1.087 | 85 | 2980 | 0.91 | UG/L | | 91 |
| 4) DIFLUOROCHLOROMETHANE | 1.095 | 51 | 3337 | 0.84 | UG/L | # | 100 |
| 5) CHLOROMETHANE | 1.196 | 50 | 4235 | 1.11 | UG/L | # | 27 |
| 6) VINYL CHLORIDE | 1.257 | 62 | 2909 | 0.93 | UG/L | # | 83 |
| 7) BROMOMETHANE | 1.455 | 94 | 2116 | 0.75 | UG/L | | 88 |
| 8) CHLOROETHANE | 1.514 | 64 | 1784 | 0.93 | UG/L | # | 87 |
| 9) FLUORODICHLOROMETHANE | 1.639 | 67 | 4501 | 0.95 | UG/L | | 99 |
| 10) TRICHLOROFLUOROMETHANE | 1.673 | 101 | 3192 | 0.79 | UG/L | | 99 |
| 12) DI ETHYL ETHER | 1.865 | 59 | 1967 | 0.82 | UG/L | # | 76 |
| 13) ACROLEIN | 1.963 | 56 | 7306 | 11.07 | UG/L | | 98 |
| 14) ACETONE | 2.071 | 43 | 11261 | 9.08 | UG/L | | 97 |
| 15) 1,1-DICHLOROETHENE | 2.021 | 61 | 3213 | 0.81 | UG/L | # | 90 |
| 16) 1,1,2-TRICL-1,2,2-TRIF... | 2.021 | 101 | 1815 | 0.96 | UG/L | | 85 |
| 17) IODOMETHANE | 2.141 | 142 | 23696 | 12.31 | UG/L | | 99 |
| 20) METHYL ACETATE | 2.320 | 43 | 4104 | 0.63 | UG/L | # | 86 |
| 21) T-BUTYL ALCOHOL | 2.515 | 59 | 4170 | 9.01 | UG/L | # | 83 |
| 22) ACRYLONITRILE | 2.615 | 53 | 1269 | 0.86 | UG/L | | 98 |
| 23) METHYLENE CHLORIDE | 2.395 | 49 | 3467 | 0.80 | UG/L | | 95 |
| 24) CARBON DISULFIDE | 2.191 | 76 | 60592 | 9.96 | UG/L | | 99 |
| 25) METHYL TERT-BUTYL ETHE... | 2.643 | 73 | 7341 | 0.92 | UG/L | | 97 |
| 26) TRANS 1,2-DICHLOROETHENE | 2.638 | 61 | 3206 | 0.84 | UG/L | | 97 |
| 27) 1,1-DICHLOROETHANE | 3.050 | 63 | 4304 | 0.88 | UG/L | # | 70 |
| 28) VINYL ACETATE | 3.114 | 43 | 85473 | 11.16 | UG/L | | 99 |
| 29) DI ISOPROYL ETHER | 3.131 | 45 | 10131 | 0.98 | UG/L | | 93 |
| 31) 2-BUTANONE | 3.683 | 43 | 18483 | 9.15 | UG/L | # | 96 |
| 32) T-BUTYL ETHYL ETHER | 3.508 | 59 | 8107 | 0.84 | UG/L | # | 83 |
| 33) CIS-1,2-DICHLOROETHENE | 3.644 | 61 | 3886 | 0.81 | UG/L | | 86 |
| 34) 2,2-DICHLOROPROPANE | 3.636 | 77 | 3381 | 0.98 | UG/L | # | 47 |
| 35) ETHYL ACETATE | 3.756 | 43 | 3390 | 1.65 | UG/L | # | 71 |
| 38) BROMOCHLOROMETHANE | 3.884 | 49 | 2339 | 0.95 | UG/L | # | 78 |
| 39) TETRAHYDROFURAN | 3.954 | 42 | 1163 | 1.01 | UG/L | # | 40 |
| 40) CHLOROFORM | 3.979 | 83 | 4265 | 0.92 | UG/L | | 91 |
| 41) 1,1,1-TRICHLOROETHANE | 4.155 | 97 | 3160m | 0.79 | UG/L | | |
| 42) CYCLOHEXANE | 4.196 | 56 | 6782 | 0.57 | UG/L | # | 67 |
| 43) CARBON TETRACHLORIDE | 4.308 | 117 | 2859 | 0.84 | UG/L | | 95 |
| 44) 1,1-DICHLOROPROPENE | 4.316 | 75 | 3004 | 0.87 | UG/L | | 93 |
| 45) BENZENE | 4.520 | 78 | 9561 | 0.96 | UG/L | # | 1 |
| 47) T-AMYLMETHYL ETHER | 4.654 | 73 | 7028 | 0.95 | UG/L | | 94 |
| 50) 1,2-DICHLOROETHANE | 4.551 | 62 | 3266 | 0.70 | UG/L | # | 74 |
| 51) TRICHLOROETHENE | 5.161 | 95 | 2157 | 0.92 | UG/L | | 95 |
| 52) METHYLCYCLOHEXANE | 5.340 | 83 | 2990 | 1.01 | UG/L | | 92 |
| 53) 1,2-DICHLOROPROPANE | 5.387 | 63 | 2585 | 0.99 | UG/L | # | 91 |
| 54) DIBROMOMETHANE | 5.504 | 93 | 1513 | 0.90 | UG/L | | 96 |

Quantitation Report (QT Reviewed)



Data Path : C:\msdchem\1\data\C032822\
Data File : C22V08419.D
Acq On : 28 Mar 2022 12:14 pm
Operator :
Sample : 22C1692-02 Inst : GCMSVOA3
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Mar 29 08:03:12 2022
Quant Method : C:\msdchem\1\methods\C051619.M
Quant Title : 8260 WATER 5MLS VOAMS 5973 #3
QLast Update : Fri May 17 05:29:37 2019
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) PENTAFLUOROBENZENE - ISTD | 4.196 | 168 | 125298 | 30.00 | UG/L | 0.00 |
| 48) 1,4-DIFLUOROBENZENE - ... | 4.919 | 114 | 190763 | 30.00 | UG/L | 0.00 |
| 70) CHLOROBENZENE-D5 ISTD | 7.752 | 82 | 91872 | 30.00 | UG/L | 0.00 |
| 89) 1,4-DICHLOROBENZENE-D4... | 10.047 | 152 | 88541 | 30.00 | UG/L | # 0.00 |
| System Monitoring Compounds | | | | | | |
| 2) 1,2-DICHLOROETHANE-D4 SS | 4.470 | 65 | 50244 | 21.32 | UG/L | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 85.28% | | | |
| 49) TOLUENE SS | 6.352 | 98 | 189176 | 24.87 | UG/L | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 99.48% | | | |
| 71) 4-BROMOFLUOROBENZENE SS | 8.909 | 95 | 65180 | 23.92 | UG/L | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 95.68% | | | |
| Target Compounds | | | | | | Qvalue |
| 21) T-BUTYL ALCOHOL | 2.506 | 59 | 27792 | 91.92 | UG/L | # 93 |
| 33) CIS-1,2-DICHLOROETHENE | 3.650 | 61 | 3684 | 1.26 | UG/L | # 75 |
| 51) TRICHLOROETHENE | 5.161 | 95 | 523 | 0.31 | UG/L | # 46 |
| 79) ISOPROPYLBENZENE | 8.770 | 105 | 2308 | 0.33 | UG/L | # 48 |
| 85) N-PROPYLBENZENE | 9.182 | 91 | 3488 | 0.42 | UG/L | 94 |
| 87) 1,3,5-TRIMETHYLBENZENE | 9.294 | 105 | 3104 | 0.53 | UG/L | # 63 |
| 90) TERT-BUTYLBENZENE | 9.673 | 119 | 579 | 0.12 | UG/L | # 20 |
| 91) 1,2,4-TRIMETHYLBENZENE | 9.721 | 105 | 17517 | 2.90 | UG/L | 99 |
| 92) SEC-BUTYLBENZENE | 9.888 | 105 | 6661 | 0.99 | UG/L | 98 |
| 94) P-ISOPROPYLTOLUENE | 10.039 | 119 | 2207 | 0.38 | UG/L | # 63 |
| 96) N-BUTYLBENZENE | 10.448 | 91 | 3554 | 0.68 | UG/L | # 46 |
| 102) NAPHTHALENE | 12.283 | 128 | 4168 | 0.61 | UG/L | # 80 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

DUSR Calculations Sheet

**Sample ID:** 360175-DP004011
**TC:** Tert-butyl alcohol
**ICAL Level:**
**Val File Result for TC:** 92 ug/L

## Ical Calc

| | |
|---|---|
| **Area TC** | 4170 |
| **Area IS** | 160171 |
| **Conc TC** | 10 |
| **Conc IS** | 30 |
| **RRF =** | 0.078104 |

| | |
|---|---|
| **1** | 0.078628 |
| **2** | 0.082147 |
| **3** | 0.078104 |
| **4** | 0.068261 |
| **5** | 0.066983 |
| **6** | 0.064578 |
| **7** | 0.072706 |
| **8** | 0.067547 |
| **9** | 0.06834 |
| **10** | 0.076592 |
| **Avg RRF =** | 0.072388 |
| **Std Dev =** | 0.006071 |
| **%RSD =** | 8.386342 |

## Sample Calc

| | | | |
|---|---|---|---|
| **Area TC** | 27792 | **DF** | 1 |
| **Area IS** | 125298 | | |
| **Conc IS** | 30 | | |
| **Avg RRF** | 0.072388 | | |
| **Conc TC =** | 91.92368 µg/L | Conc TC = | 91.92368 |

Notes:
Green = matched reported value
Red = did not match reported value

# SVOC

**NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD**
**Project:** Irvington Rugs and Cleaners March 2022
**Method:** 8270E
**Laboratory:** Con-test **SDG(s):** 22C1692
**Date:** 4/27/2022
**Reviewer:** Gabrielle Davis

**Review Level** [X] NYSDEC DUSR [ ] USEPA Region II Guideline

1. ☑ **Case Narrative Review and Data Package Completeness** COMMENTS
   Were problems noted? Yes, see attached
   Were all the samples on the COC analyzed for the requested analyses? YES NO (circle one)
   Are Field Sample IDs and Locations assigned correctly? YES NO (circle one)

2. ☑ **Holding time and Sample Collection** Sample 22C1692-01 should be 360175-DP002011
   Soil: 14 days from collection to extraction; 40 days from extraction to analysis
   Water: 7 days from collection to extraction; 40 days from extraction to analysis
   Hold time met for all samples? YES NO (circle one)

3. ☑ **QC Blanks**
   Are method blanks free of contamination? YES NO (circle one)
   Are Rinse blanks free of contamination? YES NO NA (circle one)

4. ☑ **Instrument Tuning – Data Package Narrative Review**
   Did the laboratory narrative identify any results that were not within method criteria? YES NO (circle one)
   If yes, use professional judgment to evaluate data and qualify results if needed

5. ☑ **Internal Standards – Data Package Narrative Review**
   (Area Limits = -50% to +100%, RTs within 30 seconds of daily CCAL standard (or ICAL mid-point if samples follow ICAL))
   Did the laboratory narrative identify any sample internal standards that were not within criteria? YES NO (circle one)

   Did the laboratory qualify results based on internal standard exceedances? YES NO See attached - subsets UJ, CCV%D, ICV%D and ICVRSD
   If yes to above, use professional judgment to evaluate data and qualify results if needed

6. ☑ **Instrument Calibration – Data Package Narrative Review**
   Did the laboratory narrative identify compounds that were not within criteria in the initial and/or continuing calibration standards? YES NO (circle one)

   Control Limits (Region II HW-22): Initial Calibration %RSD = 15%, Continuing Calibration %D = 20%
   Average RRF should be ≥ 0.05 (or reject NDs, J detects or use professional judgment to J/UJ)

   Did the laboratory qualify results based on initial or continuing calibration exceedances? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed

7. ☑ **Surrogate Recovery** (water and soil limits: Base/Neutral 50-140%, Acid 30-140%)
   Were all results within limits? YES NO (circle one) See attached - only 1 surrogate out for A fraction - no quals
   Were any recoveries < 10%? (Reject fraction compounds if recoveries are < 10%) Some QC outside limits - no quals

8. ☑ **Matrix Spike** (water & soil limits: Base/Neutral 50-140%, Acid 30-140%) (RPD soil=35,water=20)
   Were MS/MSDs submitted/analyzed? YES NO

   Were all results within limits? YES NO NA (circle one) See attached - subsets UJ and R, MSL, MSRPD

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9. ☑ **Duplicates** (RPD limits = water:50, soil:100)
Were Field Duplicates submitted/analyzed? YES NO

Were RPDs within criteria? YES NO NA (circle one) All ND

10. ☑ **Laboratory Control Sample Results** (water&soil limits: Base/Neutral 50-140%, Acid 30-140%)
Were all results within limits? YES NO (circle one) See attached - subsets UJ, LCSL, LCSRPD

11. ☑ **Raw Data Review and Calculation Checks**

12. ☑ **Electronic Data Review and Edits**
Does the EDD match the Form Is? YES NO (circle one)
See attached

13. ☑ **Tables and TIC Review**
**Table 1** (Samples and Analytical Methods)
**Table 2** (Analytical Results)
**Table 3** (Qualification Actions)
Were all tables produced and reviewed? YES NO (circle one)

**Table 4** (TICs) Did lab report TICs? YES NO (circle one)

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

**MS-24**

Either matrix spike or matrix spike duplicate is outside of control limits, but the other is within limits. Analysis is in control based on laboratory fortified blank recovery.

**Analyte & Samples(s) Qualified:**

**1,2-Dibromo-3-chloropropane (DB**
B304257-MSD1

**2-Hexanone (MBK)**
B304257-MSD1

**Acetone**
B304257-MSD1

**Bromomethane**
B304257-MSD1

**tert-Butyl Alcohol (TBA)**
B304257-MSD1

**RL-11**

Elevated reporting limit due to high concentration of target compounds.

**Analyte & Samples(s) Qualified:**

22C1692-06[360175-DW001-1]

**V-05**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

**Analyte & Samples(s) Qualified:**

**1,4-Dioxane**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], 22C1692-05[360175-TB32222], 22C1692-06[360175-DW001-1], 22C1692-07[360175-DW002-2], B304257-BLK1, B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1
**2-Butanone (MEK)**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], 22C1692-05[360175-TB32222], 22C1692-06[360175-DW001-1], 22C1692-07[360175-DW002-2], B304257-BLK1, B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1
**2-Hexanone (MBK)**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], 22C1692-05[360175-TB32222], 22C1692-06[360175-DW001-1], 22C1692-07[360175-DW002-2], B304257-BLK1, B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1
**Acetone**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], 22C1692-05[360175-TB32222], 22C1692-06[360175-DW001-1], 22C1692-07[360175-DW002-2], B304257-BLK1, B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1
**Acrylonitrile**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], 22C1692-05[360175-TB32222], 22C1692-06[360175-DW001-1], 22C1692-07[360175-DW002-2], B304257-BLK1, B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1
**Naphthalene**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], 22C1692-05[360175-TB32222], 22C1692-06[360175-DW001-1], 22C1692-07[360175-DW002-2], B304257-BLK1, B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1
**tert-Butyl Alcohol (TBA)**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], 22C1692-05[360175-TB32222], 22C1692-06[360175-DW001-1], 22C1692-07[360175-DW002-2], B304257-BLK1, B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1

**V-20**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

**Analyte & Samples(s) Qualified:**

**Bromomethane**
B304257-BS1, B304257-BSD1, B304257-MS1, B304257-MSD1

**SW-846 8270E**

**Qualifications:**

**L-04**

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

**Analyte & Samples(s) Qualified:**

**N-Nitrosodimethylamine**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], B304402-BLK1, B304402-BS1, B304402-BSD1

See attached for LCS review

GTD 4/28/2022

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A Pace Analytical® Laboratory

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**L-07A**

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.

**Analyte & Samples(s) Qualified:**

**Benzidine**
B304402-BS1

**Pyridine**
B304402-BS1

See attached for LCS review

---

**MS-09**

Matrix spike recovery and/or matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a low bias for reported result or non-homogeneous sample aliquots cannot be eliminated.

**Analyte & Samples(s) Qualified:**

**Benzoic Acid**
22C1692-03[360175-DP005011], B304402-MS1, B304402-MSD1

**N-Nitrosodimethylamine**
22C1692-03[360175-DP005011], B304402-MS1, B304402-MSD1

**Phenol**
22C1692-03[360175-DP005011], B304402-MS1, B304402-MSD1

**Pyridine**
22C1692-03[360175-DP005011], B304402-MS1, B304402-MSD1

See attached for MS review

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**MS-22**

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.

**Analyte & Samples(s) Qualified:**

**Benzidine**
B304402-MS1

See attached for MS review

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**R-05**

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

**Analyte & Samples(s) Qualified:**

**Benzidine**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], B304402-BLK1, B304402-BSD1

**Benzoic Acid**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], B304402-BLK1, B304402-BS1, B304402-BSD1

**Pyridine**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], B304402-BLK1, B304402-BSD1

See attached for LCS review

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**V-04**

Initial calibration did not meet method specifications. Compound was calibrated using a response factor where %RSD is outside of method specified criteria. Reported result is estimated.

**Analyte & Samples(s) Qualified:**

**Benzidine**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], B304402-BLK1, B304402-BS1, B304402-BSD1, B304402-MS1, B304402-MSD1

UJ, ICVRSD

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**V-05**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

**Analyte & Samples(s) Qualified:**

**Aniline**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], B304402-BLK1, B304402-BS1, B304402-BSD1, B304402-MS1, B304402-MSD1

UJ, CCV%D

**Benzidine**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], B304402-BLK1, B304402-BS1, B304402-BSD1, B304402-MS1, B304402-MSD1

UJ, CCV%D

**Hexachlorocyclopentadiene**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], B304402-BLK1, B304402-BS1, B304402-BSD1, B304402-MS1, B304402-MSD1

UJ, CCV%D

**Pentachlorophenol**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], B304402-BLK1, B304402-BS1, B304402-BSD1, B304402-MS1, B304402-MSD1

UJ, CCV%D

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**V-34**

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

**Analyte & Samples(s) Qualified:**

**3,3-Dichlorobenzidine**

22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], B304402-BLK1, B304402-BS1, B304402-BSD1, B304402-MS1, B304402-MSD1 UJ, ICV%D

**4-Chloroaniline**

22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], B304402-BLK1, B304402-BS1, B304402-BSD1, B304402-MS1, B304402-MSD1 UJ, ICV%D

**V-35**

Initial calibration verification (ICV) did not meet method specifications and was biased on the high side for this compound. Reported result is estimated.

**Analyte & Samples(s) Qualified:**

**Benzidine**

22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D], B304402-BLK1, B304402-BS1, B304402-BSD1, B304402-MS1, B304402-MSD1 High bias, samples ND - no quals

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The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Technical Representative

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B304402 - SW-846 3510C** | | | | | | | | | | | | |
| **Blank (B304402-BLK1)** | | | | | Prepared: 03/29/22 Analyzed: 03/31/22 | | | | | | | |
| Isophorone | ND | 10 | 0.55 | µg/L | | | | | | | | |
| 1-Methylnaphthalene | ND | 5.0 | 0.60 | µg/L | | | | | | | | |
| 2-Methylnaphthalene | ND | 5.0 | 0.69 | µg/L | | | | | | | | |
| 2-Methylphenol | ND | 10 | 0.47 | µg/L | | | | | | | | |
| 3/4-Methylphenol | ND | 10 | 0.46 | µg/L | | | | | | | | |
| Naphthalene | ND | 5.0 | 0.61 | µg/L | | | | | | | | |
| 2-Nitroaniline | ND | 10 | 0.69 | µg/L | | | | | | | | |
| 3-Nitroaniline | ND | 10 | 0.59 | µg/L | | | | | | | | |
| 4-Nitroaniline | ND | 10 | 0.60 | µg/L | | | | | | | | |
| Nitrobenzene | ND | 10 | 0.63 | µg/L | | | | | | | | |
| 2-Nitrophenol | ND | 10 | 0.51 | µg/L | | | | | | | | |
| 4-Nitrophenol | ND | 10 | 2.1 | µg/L | | | | | | | | |
| N-Nitrosodimethylamine | ND | 10 | 0.78 | µg/L | | | | | | | | L-04 |
| N-Nitrosodiphenylamine/Diphenylamine | ND | 10 | 0.38 | µg/L | | | | | | | | |
| N-Nitrosodi-n-propylamine | ND | 10 | 0.61 | µg/L | | | | | | | | |
| Pentachloronitrobenzene | ND | 10 | 0.62 | µg/L | | | | | | | | |
| Pentachlorophenol | ND | 10 | 3.5 | µg/L | | | | | | | | V-05 |
| Phenanthrene | ND | 5.0 | 0.48 | µg/L | | | | | | | | |
| Phenol | ND | 10 | 0.23 | µg/L | | | | | | | | |
| Pyrene | ND | 5.0 | 0.61 | µg/L | | | | | | | | |
| Pyridine | ND | 5.0 | 2.5 | µg/L | | | | | | | | R-05 |
| 1,2,4,5-Tetrachlorobenzene | ND | 10 | 0.65 | µg/L | | | | | | | | |
| 1,2,4-Trichlorobenzene | ND | 5.0 | 0.67 | µg/L | | | | | | | | |
| 2,4,5-Trichlorophenol | ND | 10 | 0.51 | µg/L | | | | | | | | |
| 2,4,6-Trichlorophenol | ND | 10 | 0.45 | µg/L | | | | | | | | |
| Surrogate: 2-Fluorophenol | *88.0* | | | µg/L | 200 | | 44.0 | | 15-110 | | | |
| Surrogate: Phenol-d6 | *58.1* | | | µg/L | 200 | | 29.1 | | 15-110 | | | |
| Surrogate: Nitrobenzene-d5 | *67.0* | | | µg/L | 100 | | 67.0 | | 30-130 | | | |
| Surrogate: 2-Fluorobiphenyl | *75.4* | | | µg/L | 100 | | 75.4 | | 30-130 | | | |
| Surrogate: 2,4,6-Tribromophenol | *176* | | | µg/L | 200 | | 88.2 | | 15-110 | | | |
| Surrogate: p-Terphenyl-d14 | *85.0* | | | µg/L | 100 | | 85.0 | | 30-130 | | | |
| **LCS (B304402-BS1)** B/N: 50-140 A: 30-140 | | | | | Prepared: 03/29/22 Analyzed: 03/31/22 | | | | | | | |
| Acenaphthene | 34.0 | 5.0 | 0.52 | µg/L | 50.0 | | 68.0 | | 40-140 | | | |
| Acenaphthylene | 37.5 | 5.0 | 0.48 | µg/L | 50.0 | | 75.0 | | 40-140 | | | |
| Acetophenone | 32.0 | 10 | 0.53 | µg/L | 50.0 | | 64.1 | | 40-140 | | | |
| Aniline | 27.1 | 5.0 | 0.70 | µg/L | 50.0 | | 54.1 | | 40-140 | | | V-05 |
| Anthracene | 37.6 | 5.0 | 0.46 | µg/L | 50.0 | | 75.2 | | 40-140 | | | |
| **Benzidine** UJ, LCSL | 12.0 | 20 | 10 | µg/L | 50.0 | | **24.1** | * | 40-140 | | | L-07A, V-04, V-05, V-35, J |
| Benzo(a)anthracene | 38.0 | 5.0 | 0.41 | µg/L | 50.0 | | 75.9 | | 40-140 | | | |
| Benzo(a)pyrene | 40.8 | 5.0 | 0.57 | µg/L | 50.0 | | 81.6 | | 40-140 | | | |
| Benzo(b)fluoranthene | 37.2 | 5.0 | 0.47 | µg/L | 50.0 | | 74.5 | | 40-140 | | | |
| Benzo(g,h,i)perylene | 38.7 | 5.0 | 0.61 | µg/L | 50.0 | | 77.4 | | 40-140 | | | |
| Benzo(k)fluoranthene | 39.8 | 5.0 | 0.49 | µg/L | 50.0 | | 79.7 | | 40-140 | | | |
| Benzoic Acid UJ, LCSL | 10.6 | 10 | 8.4 | µg/L | 50.0 | | 21.2 | | 10-130 | | | R-05 † |
| Bis(2-chloroethoxy)methane | 34.4 | 10 | 0.46 | µg/L | 50.0 | | 68.8 | | 40-140 | | | |
| Bis(2-chloroethyl)ether | 30.0 | 10 | 0.57 | µg/L | 50.0 | | 60.0 | | 40-140 | | | |
| Bis(2-chloroisopropyl)ether | 33.2 | 10 | 0.69 | µg/L | 50.0 | | 66.5 | | 40-140 | | | |
| Bis(2-Ethylhexyl)phthalate | 35.5 | 10 | 0.84 | µg/L | 50.0 | | 71.0 | | 40-140 | | | |
| 4-Bromophenylphenylether | 37.6 | 10 | 0.47 | µg/L | 50.0 | | 75.1 | | 40-140 | | | |

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B304402 - SW-846 3510C** | | | | | | | | | | | | |
| **LCS (B304402-BS1)** | | | | | Prepared: 03/29/22 Analyzed: 03/31/22 | | | | | | | |
| Butylbenzylphthalate | 34.2 | 10 | 0.67 | µg/L | 50.0 | | 68.5 | 40-140 | | | | |
| Carbazole | 36.2 | 10 | 0.43 | µg/L | 50.0 | | 72.4 | 40-140 | | | | |
| 4-Chloroaniline | 40.5 | 10 | 0.58 | µg/L | 50.0 | | 81.0 | 40-140 | | | V-34 | |
| 4-Chloro-3-methylphenol | 32.9 | 10 | 0.56 | µg/L | 50.0 | | 65.8 | 30-130 | | | | |
| 2-Chloronaphthalene | 32.6 | 10 | 0.49 | µg/L | 50.0 | | 65.3 | 40-140 | | | | |
| 2-Chlorophenol | 30.2 | 10 | 0.47 | µg/L | 50.0 | | 60.5 | 30-130 | | | | |
| 4-Chlorophenylphenylether | 36.7 | 10 | 0.48 | µg/L | 50.0 | | 73.4 | 40-140 | | | | |
| Chrysene | 36.0 | 5.0 | 0.40 | µg/L | 50.0 | | 72.0 | 40-140 | | | | |
| Dibenz(a,h)anthracene | 39.2 | 5.0 | 0.69 | µg/L | 50.0 | | 78.4 | 40-140 | | | | |
| Dibenzofuran | 40.1 | 5.0 | 0.49 | µg/L | 50.0 | | 80.2 | 40-140 | | | | |
| Di-n-butylphthalate | 33.8 | 10 | 0.46 | µg/L | 50.0 | | 67.6 | 40-140 | | | | |
| 1,2-Dichlorobenzene | 29.0 | 5.0 | 0.67 | µg/L | 50.0 | | 58.0 | 40-140 | | | | |
| 1,3-Dichlorobenzene | 28.1 | 5.0 | 0.67 | µg/L | 50.0 | | 56.2 | 40-140 | | | | |
| 1,4-Dichlorobenzene | 28.2 | 5.0 | 0.67 | µg/L | 50.0 | | 56.5 | 40-140 | | | | |
| 3,3-Dichlorobenzidine | 42.5 | 10 | 0.71 | µg/L | 50.0 | | 85.0 | 40-140 | | | V-34 | |
| 2,4-Dichlorophenol | 34.3 | 10 | 0.48 | µg/L | 50.0 | | 68.5 | 30-130 | | | | |
| Diethylphthalate | 34.7 | 10 | 0.42 | µg/L | 50.0 | | 69.5 | 40-140 | | | | |
| 2,4-Dimethylphenol | 35.0 | 10 | 0.70 | µg/L | 50.0 | | 69.9 | 30-130 | | | | |
| Dimethylphthalate | 35.6 | 10 | 0.38 | µg/L | 50.0 | | 71.2 | 40-140 | | | | |
| 4,6-Dinitro-2-methylphenol | 32.2 | 10 | 7.0 | µg/L | 50.0 | | 64.4 | 30-130 | | | | |
| 2,4-Dinitrophenol | 26.7 | 10 | 8.1 | µg/L | 50.0 | | 53.4 | 30-130 | | | | |
| 2,4-Dinitrotoluene | 36.8 | 10 | 0.61 | µg/L | 50.0 | | 73.6 | 40-140 | | | | |
| 2,6-Dinitrotoluene | 38.8 | 10 | 0.52 | µg/L | 50.0 | | 77.6 | 40-140 | | | | |
| Di-n-octylphthalate | 33.6 | 10 | 3.9 | µg/L | 50.0 | | 67.1 | 40-140 | | | | |
| 1,2-Diphenylhydrazine/Azobenzene | 35.8 | 10 | 0.57 | µg/L | 50.0 | | 71.5 | 40-140 | | | | |
| Fluoranthene | 36.6 | 5.0 | 0.43 | µg/L | 50.0 | | 73.1 | 40-140 | | | | |
| Fluorene | 36.8 | 5.0 | 0.52 | µg/L | 50.0 | | 73.7 | 40-140 | | | | |
| Hexachlorobenzene | 40.6 | 10 | 0.51 | µg/L | 50.0 | | 81.2 | 40-140 | | | | |
| Hexachlorobutadiene | 31.7 | 10 | 0.77 | µg/L | 50.0 | | 63.5 | 40-140 | | | | |
| Hexachlorocyclopentadiene B/N - UJ, LCSL | 22.5 | 10 | 3.7 | µg/L | 50.0 | | 44.9 | 30-140 | | | V-05 | † |
| Hexachloroethane | 27.0 | 10 | 0.74 | µg/L | 50.0 | | 53.9 | 40-140 | | | | |
| Indeno(1,2,3-cd)pyrene | 39.0 | 5.0 | 0.74 | µg/L | 50.0 | | 78.1 | 40-140 | | | | |
| Isophorone | 38.1 | 10 | 0.55 | µg/L | 50.0 | | 76.1 | 40-140 | | | | |
| 1-Methylnaphthalene | 33.6 | 5.0 | 0.60 | µg/L | 50.0 | | 67.2 | 40-140 | | | | |
| 2-Methylnaphthalene | 38.3 | 5.0 | 0.69 | µg/L | 50.0 | | 76.6 | 40-140 | | | | |
| 2-Methylphenol | 30.6 | 10 | 0.47 | µg/L | 50.0 | | 61.1 | 30-130 | | | | |
| 3/4-Methylphenol | 27.8 | 10 | 0.46 | µg/L | 50.0 | | 55.7 | 30-130 | | | | |
| Naphthalene | 33.7 | 5.0 | 0.61 | µg/L | 50.0 | | 67.4 | 40-140 | | | | |
| 2-Nitroaniline | 34.2 | 10 | 0.69 | µg/L | 50.0 | | 68.3 | 40-140 | | | | |
| 3-Nitroaniline | 37.1 | 10 | 0.59 | µg/L | 50.0 | | 74.2 | 40-140 | | | | |
| 4-Nitroaniline | 35.3 | 10 | 0.60 | µg/L | 50.0 | | 70.5 | 40-140 | | | | |
| Nitrobenzene | 32.6 | 10 | 0.63 | µg/L | 50.0 | | 65.1 | 40-140 | | | | |
| 2-Nitrophenol | 34.0 | 10 | 0.51 | µg/L | 50.0 | | 68.0 | 30-130 | | | | |
| 4-Nitrophenol A - within limits - no quals | 18.6 | 10 | 2.1 | µg/L | 50.0 | | 37.2 | 10-130 | | | | † |
| **N-Nitrosodimethylamine** B/N - UJ, LCSL | 18.3 | 10 | 0.78 | µg/L | 50.0 | | **36.7** | * 40-140 | | | L-04 | |
| N-Nitrosodiphenylamine/Diphenylamine | 38.4 | 10 | 0.38 | µg/L | 50.0 | | 76.7 | 40-140 | | | | |
| N-Nitrosodi-n-propylamine | 30.7 | 10 | 0.61 | µg/L | 50.0 | | 61.4 | 40-140 | | | | |
| Pentachloronitrobenzene | 38.1 | 10 | 0.62 | µg/L | 50.0 | | 76.3 | 40-140 | | | | |
| Pentachlorophenol | 26.5 | 10 | 3.5 | µg/L | 50.0 | | 53.1 | 30-130 | | | V-05 | |
| Phenanthrene | 38.2 | 5.0 | 0.48 | µg/L | 50.0 | | 76.4 | 40-140 | | | | |

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B304402 - SW-846 3510C** | | | | | | | | | | | | | |
| **LCS (B304402-BS1)** | | | | | Prepared: 03/29/22 Analyzed: 03/31/22 | | | | | | | | |
| Phenol UJ, LCSL | 13.9 | 10 | 0.23 | µg/L | 50.0 | | 27.8 | | 20-130 | | | | † |
| Pyrene | 38.9 | 5.0 | 0.61 | µg/L | 50.0 | | 77.9 | | 40-140 | | | | |
| **Pyridine** %R essentially 10 - UJ, LCSL | 4.97 | 5.0 | 2.5 | µg/L | 50.0 | | **9.94** | * | 10-140 | | | L-07A, J | † |
| 1,2,4,5-Tetrachlorobenzene | 35.6 | 10 | 0.65 | µg/L | 50.0 | | 71.3 | | 40-140 | | | | |
| 1,2,4-Trichlorobenzene | 33.5 | 5.0 | 0.67 | µg/L | 50.0 | | 67.1 | | 40-140 | | | | |
| 2,4,5-Trichlorophenol | 38.6 | 10 | 0.51 | µg/L | 50.0 | | 77.1 | | 30-130 | | | | |
| 2,4,6-Trichlorophenol | 35.5 | 10 | 0.45 | µg/L | 50.0 | | 70.9 | | 30-130 | | | | |
| Surrogate: 2-Fluorophenol | *93.6* | | | µg/L | 200 | | 46.8 | | 15-110 | | | | |
| Surrogate: Phenol-d6 | *64.7* | | | µg/L | 200 | | 32.4 | | 15-110 | | | | |
| Surrogate: Nitrobenzene-d5 | *71.3* | | | µg/L | 100 | | 71.3 | | 30-130 | | | | |
| Surrogate: 2-Fluorobiphenyl | *81.0* | | | µg/L | 100 | | 81.0 | | 30-130 | | | | |
| Surrogate: 2,4,6-Tribromophenol | *176* | | | µg/L | 200 | | 88.1 | | 15-110 | | | | |
| Surrogate: p-Terphenyl-d14 | *80.0* | | | µg/L | 100 | | 80.0 | | 30-130 | | | | |
| **LCS Dup (B304402-BSD1)** | | | | | Prepared: 03/29/22 Analyzed: 03/31/22 | | | | | | | | |
| Acenaphthene | 33.3 | 5.0 | 0.52 | µg/L | 50.0 | | 66.6 | | 40-140 | 1.99 | 20 | | |
| Acenaphthylene | 36.8 | 5.0 | 0.48 | µg/L | 50.0 | | 73.5 | | 40-140 | 1.97 | 20 | | |
| Acetophenone | 30.7 | 10 | 0.53 | µg/L | 50.0 | | 61.5 | | 40-140 | 4.11 | 20 | | |
| Aniline | 34.4 | 5.0 | 0.70 | µg/L | 50.0 | | 68.8 | | 40-140 | 23.9 | 50 | V-05 | ‡ |
| Anthracene | 36.3 | 5.0 | 0.46 | µg/L | 50.0 | | 72.5 | | 40-140 | 3.66 | 20 | | |
| Benzidine Already qual'd UJ, add LCSRPD | 59.0 | 20 | 10 | µg/L | 50.0 | | 118 | | 40-140 | **132** | * 20 | R-05, V-04, V-05, V-35 | |
| Benzo(a)anthracene | 37.5 | 5.0 | 0.41 | µg/L | 50.0 | | 75.0 | | 40-140 | 1.19 | 20 | | |
| Benzo(a)pyrene | 38.8 | 5.0 | 0.57 | µg/L | 50.0 | | 77.7 | | 40-140 | 4.95 | 20 | | |
| Benzo(b)fluoranthene | 36.6 | 5.0 | 0.47 | µg/L | 50.0 | | 73.1 | | 40-140 | 1.79 | 20 | | |
| Benzo(g,h,i)perylene | 35.6 | 5.0 | 0.61 | µg/L | 50.0 | | 71.2 | | 40-140 | 8.37 | 20 | | |
| Benzo(k)fluoranthene | 39.2 | 5.0 | 0.49 | µg/L | 50.0 | | 78.3 | | 40-140 | 1.72 | 20 | | |
| Benzoic Acid Already qual'd - see above | 5.37 | 10 | | µg/L | 50.0 | | 10.7 | | 10-130 | **65.6** | * 50 | R-05, J | † ‡ |
| Bis(2-chloroethoxy)methane | 32.1 | 10 | 0.46 | µg/L | 50.0 | | 64.3 | | 40-140 | 6.73 | 20 | | |
| Bis(2-chloroethyl)ether | 28.2 | 10 | 0.57 | µg/L | 50.0 | | 56.5 | | 40-140 | 5.94 | 20 | | |
| Bis(2-chloroisopropyl)ether | 31.3 | 10 | 0.69 | µg/L | 50.0 | | 62.6 | | 40-140 | 6.11 | 20 | | |
| Bis(2-Ethylhexyl)phthalate | 34.6 | 10 | 0.84 | µg/L | 50.0 | | 69.2 | | 40-140 | 2.45 | 20 | | |
| 4-Bromophenylphenylether | 35.9 | 10 | 0.47 | µg/L | 50.0 | | 71.7 | | 40-140 | 4.60 | 20 | | |
| Butylbenzylphthalate | 34.1 | 10 | 0.67 | µg/L | 50.0 | | 68.2 | | 40-140 | 0.410 | 20 | | |
| Carbazole | 35.1 | 10 | 0.43 | µg/L | 50.0 | | 70.1 | | 40-140 | 3.12 | 20 | | |
| 4-Chloroaniline | 40.6 | 10 | 0.58 | µg/L | 50.0 | | 81.3 | | 40-140 | 0.419 | 20 | V-34 | |
| 4-Chloro-3-methylphenol | 31.3 | 10 | 0.56 | µg/L | 50.0 | | 62.6 | | 30-130 | 5.02 | 20 | | |
| 2-Chloronaphthalene | 31.2 | 10 | 0.49 | µg/L | 50.0 | | 62.4 | | 40-140 | 4.51 | 20 | | |
| 2-Chlorophenol | 28.9 | 10 | 0.47 | µg/L | 50.0 | | 57.7 | | 30-130 | 4.64 | 20 | | |
| 4-Chlorophenylphenylether | 35.6 | 10 | 0.48 | µg/L | 50.0 | | 71.3 | | 40-140 | 2.88 | 20 | | |
| Chrysene | 35.1 | 5.0 | 0.40 | µg/L | 50.0 | | 70.2 | | 40-140 | 2.50 | 20 | | |
| Dibenz(a,h)anthracene | 37.0 | 5.0 | 0.69 | µg/L | 50.0 | | 74.1 | | 40-140 | 5.69 | 20 | | |
| Dibenzofuran | 39.3 | 5.0 | 0.49 | µg/L | 50.0 | | 78.6 | | 40-140 | 2.04 | 20 | | |
| Di-n-butylphthalate | 33.4 | 10 | 0.46 | µg/L | 50.0 | | 66.8 | | 40-140 | 1.13 | 20 | | |
| 1,2-Dichlorobenzene | 27.2 | 5.0 | 0.67 | µg/L | 50.0 | | 54.4 | | 40-140 | 6.37 | 20 | | |
| 1,3-Dichlorobenzene | 25.7 | 5.0 | 0.67 | µg/L | 50.0 | | 51.3 | | 40-140 | 9.11 | 20 | | |
| 1,4-Dichlorobenzene | 26.4 | 5.0 | 0.67 | µg/L | 50.0 | | 52.7 | | 40-140 | 6.85 | 20 | | |
| 3,3-Dichlorobenzidine | 43.2 | 10 | 0.71 | µg/L | 50.0 | | 86.4 | | 40-140 | 1.61 | 20 | V-34 | |
| 2,4-Dichlorophenol | 32.7 | 10 | 0.48 | µg/L | 50.0 | | 65.4 | | 30-130 | 4.66 | 20 | | |
| Diethylphthalate | 35.6 | 10 | 0.42 | µg/L | 50.0 | | 71.2 | | 40-140 | 2.45 | 20 | | |
| 2,4-Dimethylphenol | 33.1 | 10 | 0.70 | µg/L | 50.0 | | 66.1 | | 30-130 | 5.58 | 20 | | |

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B304402 - SW-846 3510C** | | | | | | | | | | | | | |
| **LCS Dup (B304402-BSD1)** | | | | | Prepared: 03/29/22 Analyzed: 03/31/22 | | | | | | | | |
| Dimethylphthalate | 35.2 | 10 | 0.38 | µg/L | 50.0 | | 70.4 | | 40-140 | 1.16 | 50 | | ‡ |
| 4,6-Dinitro-2-methylphenol | 32.2 | 10 | 7.0 | µg/L | 50.0 | | 64.3 | | 30-130 | 0.155 | 50 | | ‡ |
| 2,4-Dinitrophenol | 29.2 | 10 | 8.1 | µg/L | 50.0 | | 58.4 | | 30-130 | 8.84 | 50 | | ‡ |
| 2,4-Dinitrotoluene | 38.0 | 10 | 0.61 | µg/L | 50.0 | | 76.0 | | 40-140 | 3.21 | 20 | | |
| 2,6-Dinitrotoluene | 39.1 | 10 | 0.52 | µg/L | 50.0 | | 78.2 | | 40-140 | 0.770 | 20 | | |
| Di-n-octylphthalate | 32.7 | 10 | 3.9 | µg/L | 50.0 | | 65.4 | | 40-140 | 2.63 | 20 | | |
| 1,2-Diphenylhydrazine/Azobenzene | 34.0 | 10 | 0.57 | µg/L | 50.0 | | 68.1 | | 40-140 | 4.96 | 20 | | |
| Fluoranthene | 36.2 | 5.0 | 0.43 | µg/L | 50.0 | | 72.4 | | 40-140 | 1.04 | 20 | | |
| Fluorene | 36.7 | 5.0 | 0.52 | µg/L | 50.0 | | 73.4 | | 40-140 | 0.435 | 20 | | |
| Hexachlorobenzene | 39.3 | 10 | 0.51 | µg/L | 50.0 | | 78.5 | | 40-140 | 3.33 | 20 | | |
| Hexachlorobutadiene | 29.2 | 10 | 0.77 | µg/L | 50.0 | | 58.3 | | 40-140 | 8.48 | 20 | | |
| Hexachlorocyclopentadiene | 20.6 | 10 | 3.7 | µg/L | 50.0 | | 41.3 | | 30-140 | 8.54 | 50 | V-05 | † ‡ |
| Hexachloroethane | 24.3 | 10 | 0.74 | µg/L | 50.0 | | 48.6 | | 40-140 | 10.5 | 50 | | ‡ |
| Indeno(1,2,3-cd)pyrene | 36.6 | 5.0 | 0.74 | µg/L | 50.0 | | 73.1 | | 40-140 | 6.56 | 50 | | ‡ |
| Isophorone | 36.1 | 10 | 0.55 | µg/L | 50.0 | | 72.2 | | 40-140 | 5.23 | 20 | | |
| 1-Methylnaphthalene | 31.3 | 5.0 | 0.60 | µg/L | 50.0 | | 62.6 | | 40-140 | 7.09 | 20 | | |
| 2-Methylnaphthalene | 36.4 | 5.0 | 0.69 | µg/L | 50.0 | | 72.8 | | 40-140 | 5.11 | 20 | | |
| 2-Methylphenol | 29.7 | 10 | 0.47 | µg/L | 50.0 | | 59.5 | | 30-130 | 2.72 | 20 | | |
| 3/4-Methylphenol | 26.0 | 10 | 0.46 | µg/L | 50.0 | | 52.1 | | 30-130 | 6.68 | 20 | | |
| Naphthalene | 31.9 | 5.0 | 0.61 | µg/L | 50.0 | | 63.8 | | 40-140 | 5.55 | 20 | | |
| 2-Nitroaniline | 34.4 | 10 | 0.69 | µg/L | 50.0 | | 68.9 | | 40-140 | 0.816 | 20 | | |
| 3-Nitroaniline | 39.5 | 10 | 0.59 | µg/L | 50.0 | | 78.9 | | 40-140 | 6.11 | 20 | | |
| 4-Nitroaniline | 38.1 | 10 | 0.60 | µg/L | 50.0 | | 76.2 | | 40-140 | 7.71 | 20 | | |
| Nitrobenzene | 30.9 | 10 | 0.63 | µg/L | 50.0 | | 61.8 | | 40-140 | 5.26 | 20 | | |
| 2-Nitrophenol | 30.6 | 10 | 0.51 | µg/L | 50.0 | | 61.1 | | 30-130 | 10.6 | 20 | | |
| 4-Nitrophenol | 17.4 | 10 | 2.1 | µg/L | 50.0 | | 34.9 | | 10-130 | 6.49 | 50 | | † ‡ |
| **N-Nitrosodimethylamine** | 17.1 | 10 | 0.78 | µg/L | 50.0 | | **34.1** | * | 40-140 | 7.17 | 20 | L-04 | |
| N-Nitrosodiphenylamine/Diphenylamine | 36.4 | 10 | 0.38 | µg/L | 50.0 | | 72.8 | | 40-140 | 5.19 | 20 | | |
| N-Nitrosodi-n-propylamine | 29.7 | 10 | 0.61 | µg/L | 50.0 | | 59.4 | | 40-140 | 3.38 | 20 | | |
| Pentachloronitrobenzene | 39.4 | 10 | 0.62 | µg/L | 50.0 | | 78.8 | | 40-140 | 3.22 | 20 | | |
| Pentachlorophenol | 24.4 | 10 | 3.5 | µg/L | 50.0 | | 48.9 | | 30-130 | 8.20 | 50 | V-05 | ‡ |
| Phenanthrene | 36.9 | 5.0 | 0.48 | µg/L | 50.0 | | 73.9 | | 40-140 | 3.38 | 20 | | |
| Phenol | 13.2 | 10 | 0.23 | µg/L | 50.0 | | 26.4 | | 20-130 | 5.02 | 20 | | † |
| Pyrene | 38.8 | 5.0 | 0.61 | µg/L | 50.0 | | 77.6 | | 40-140 | 0.309 | 20 | | |
| Pyridine | 11.4 | 5.0 | 2.5 | µg/L | 50.0 | | 22.8 | | 10-140 | **78.4** | * 50 | R-05 | † ‡ |
| 1,2,4,5-Tetrachlorobenzene | 33.5 | 10 | 0.65 | µg/L | 50.0 | | 67.0 | | 40-140 | 6.10 | 20 | | |
| 1,2,4-Trichlorobenzene | 30.5 | 5.0 | 0.67 | µg/L | 50.0 | | 61.0 | | 40-140 | 9.46 | 20 | | |
| 2,4,5-Trichlorophenol | 37.8 | 10 | 0.51 | µg/L | 50.0 | | 75.6 | | 30-130 | 1.99 | 20 | | |
| 2,4,6-Trichlorophenol | 35.3 | 10 | 0.45 | µg/L | 50.0 | | 70.6 | | 30-130 | 0.481 | 50 | | ‡ |
| Surrogate: 2-Fluorophenol | *87.4* | | | µg/L | 200 | | 43.7 | | 15-110 | | | | |
| Surrogate: Phenol-d6 | *60.3* | | | µg/L | 200 | | 30.1 | | 15-110 | | | | |
| Surrogate: Nitrobenzene-d5 | *65.8* | | | µg/L | 100 | | 65.8 | | 30-130 | | | | |
| Surrogate: 2-Fluorobiphenyl | *76.9* | | | µg/L | 100 | | 76.9 | | 30-130 | | | | |
| Surrogate: 2,4,6-Tribromophenol | *180* | | | µg/L | 200 | | 89.9 | | 15-110 | | | | |
| Surrogate: p-Terphenyl-d14 | *78.7* | | | µg/L | 100 | | 78.7 | | 30-130 | | | | |

Already qual'd - see above

B/N - UJ, LCSL

A - within limits - no quals

Already qual'd - see above

A - within limits - no quals

Already UJ, LCSL

Already qual'd UJ, add LCSRPD

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B304402 - SW-846 3510C** | | | | | | | | | | | | |
| Qual'd sample and FD | | | | | | | | | | | | |
| **Matrix Spike (B304402-MS1)** | **Source: 22C1692-03** | | | | Prepared: 03/29/22 Analyzed: 04/06/22 | | | | | | | |
| Acenaphthene | 33.8 | 4.8 | 0.50 | µg/L | 48.1 | ND | 70.3 | | 40-140 | | | |
| Acenaphthylene | 37.1 | 4.8 | 0.47 | µg/L | 48.1 | ND | 77.2 | | 40-140 | | | |
| Acetophenone | 30.9 | 9.6 | 0.51 | µg/L | 48.1 | ND | 64.2 | | 40-140 | | | |
| Aniline | 30.7 | 4.8 | 0.67 | µg/L | 48.1 | ND | 63.8 | | 40-140 | | | V-05 |
| Anthracene | 36.4 | 4.8 | 0.44 | µg/L | 48.1 | ND | 75.6 | | 40-140 | | | |
| **Benzidine** High bias, sample ND - no quals | 68.1 | 19 | 10 | µg/L | 48.1 | ND | **142** | * | 40-140 | | | MS-22, V-04, V-05, V-35 |
| Benzo(a)anthracene | 36.6 | 4.8 | 0.39 | µg/L | 48.1 | ND | 76.2 | | 40-140 | | | |
| Benzo(a)pyrene | 38.9 | 4.8 | 0.55 | µg/L | 48.1 | ND | 81.0 | | 40-140 | | | |
| Benzo(b)fluoranthene | 36.3 | 4.8 | 0.45 | µg/L | 48.1 | ND | 75.5 | | 40-140 | | | |
| Benzo(g,h,i)perylene | 37.0 | 4.8 | 0.59 | µg/L | 48.1 | ND | 77.0 | | 40-140 | | | |
| Benzo(k)fluoranthene | 38.0 | 4.8 | 0.47 | µg/L | 48.1 | ND | 79.1 | | 40-140 | | | |
| **Benzoic Acid** R, MSL | 3.71 | 9.6 | 0.0 | µg/L | 48.1 | ND | **7.72** | * | 40-140 | | | MS-09, J |
| Bis(2-chloroethoxy)methane | 32.2 | 9.6 | 0.44 | µg/L | 48.1 | ND | 66.9 | | 40-140 | | | |
| Bis(2-chloroethyl)ether | 28.8 | 9.6 | 0.55 | µg/L | 48.1 | ND | 59.8 | | 40-140 | | | |
| Bis(2-chloroisopropyl)ether | 32.4 | 9.6 | 0.66 | µg/L | 48.1 | ND | 67.5 | | 40-140 | | | |
| Bis(2-Ethylhexyl)phthalate | 36.0 | 9.6 | 0.81 | µg/L | 48.1 | ND | 74.8 | | 40-140 | | | |
| 4-Bromophenylphenylether | 33.9 | 9.6 | 0.45 | µg/L | 48.1 | ND | 70.6 | | 40-140 | | | |
| Butylbenzylphthalate | 33.3 | 9.6 | 0.65 | µg/L | 48.1 | ND | 69.2 | | 40-140 | | | |
| Carbazole | 34.8 | 9.6 | 0.41 | µg/L | 48.1 | ND | 72.5 | | 40-140 | | | |
| 4-Chloroaniline | 36.7 | 9.6 | 0.55 | µg/L | 48.1 | ND | 76.2 | | 40-140 | | | V-34 |
| 4-Chloro-3-methylphenol | 31.4 | 9.6 | 0.54 | µg/L | 48.1 | ND | 65.3 | | 30-130 | | | |
| 2-Chloronaphthalene | 32.2 | 9.6 | 0.47 | µg/L | 48.1 | ND | 67.0 | | 40-140 | | | |
| 2-Chlorophenol | 29.6 | 9.6 | 0.46 | µg/L | 48.1 | ND | 61.6 | | 30-130 | | | |
| 4-Chlorophenylphenylether | 35.2 | 9.6 | 0.46 | µg/L | 48.1 | ND | 73.2 | | 40-140 | | | |
| Chrysene | 35.1 | 4.8 | 0.38 | µg/L | 48.1 | ND | 73.0 | | 40-140 | | | |
| Dibenz(a,h)anthracene | 37.8 | 4.8 | 0.66 | µg/L | 48.1 | ND | 78.7 | | 40-140 | | | |
| Dibenzofuran | 38.9 | 4.8 | 0.47 | µg/L | 48.1 | ND | 81.0 | | 40-140 | | | |
| Di-n-butylphthalate | 32.4 | 9.6 | 0.44 | µg/L | 48.1 | ND | 67.3 | | 40-140 | | | |
| 1,2-Dichlorobenzene | 30.2 | 4.8 | 0.64 | µg/L | 48.1 | ND | 62.9 | | 40-140 | | | |
| 1,3-Dichlorobenzene | 29.7 | 4.8 | 0.65 | µg/L | 48.1 | ND | 61.7 | | 40-140 | | | |
| 1,4-Dichlorobenzene | 29.6 | 4.8 | 0.64 | µg/L | 48.1 | ND | 61.5 | | 40-140 | | | |
| 3,3-Dichlorobenzidine | 41.4 | 9.6 | 0.68 | µg/L | 48.1 | ND | 86.1 | | 40-140 | | | V-34 |
| 2,4-Dichlorophenol | 32.8 | 9.6 | 0.46 | µg/L | 48.1 | ND | 68.1 | | 30-130 | | | |
| Diethylphthalate | 33.8 | 9.6 | 0.40 | µg/L | 48.1 | ND | 70.3 | | 40-140 | | | |
| 2,4-Dimethylphenol | 32.1 | 9.6 | 0.67 | µg/L | 48.1 | ND | 66.8 | | 30-130 | | | |
| Dimethylphthalate | 33.8 | 9.6 | 0.36 | µg/L | 48.1 | ND | 70.3 | | 40-140 | | | |
| 4,6-Dinitro-2-methylphenol | 31.7 | 9.6 | 6.8 | µg/L | 48.1 | ND | 65.8 | | 30-130 | | | |
| 2,4-Dinitrophenol | 27.8 | 9.6 | 7.8 | µg/L | 48.1 | ND | 57.8 | | 30-130 | | | |
| 2,4-Dinitrotoluene | 37.0 | 9.6 | 0.59 | µg/L | 48.1 | ND | 76.9 | | 40-140 | | | |
| 2,6-Dinitrotoluene | 38.8 | 9.6 | 0.50 | µg/L | 48.1 | ND | 80.7 | | 40-140 | | | |
| Di-n-octylphthalate | 34.8 | 9.6 | 3.8 | µg/L | 48.1 | ND | 72.3 | | 40-140 | | | |
| 1,2-Diphenylhydrazine/Azobenzene | 33.6 | 9.6 | 0.55 | µg/L | 48.1 | ND | 70.0 | | 40-140 | | | |
| Fluoranthene | 35.4 | 4.8 | 0.41 | µg/L | 48.1 | ND | 73.6 | | 40-140 | | | |
| Fluorene | 36.3 | 4.8 | 0.50 | µg/L | 48.1 | ND | 75.5 | | 40-140 | | | |
| Hexachlorobenzene | 37.2 | 9.6 | 0.49 | µg/L | 48.1 | ND | 77.4 | | 40-140 | | | |
| Hexachlorobutadiene | 32.4 | 9.6 | 0.74 | µg/L | 48.1 | ND | 67.5 | | 40-140 | | | |
| Hexachlorocyclopentadiene | 24.6 | 9.6 | 3.5 | µg/L | 48.1 | ND | 51.2 | | 30-130 | | | V-05 |
| Hexachloroethane | 28.4 | 9.6 | 0.71 | µg/L | 48.1 | ND | 59.1 | | 40-140 | | | |
| Indeno(1,2,3-cd)pyrene | 35.8 | 4.8 | 0.71 | µg/L | 48.1 | ND | 74.5 | | 40-140 | | | |

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B304402 - SW-846 3510C** | | | | | | | | | | | | |
| **Matrix Spike (B304402-MS1)** | **Source: 22C1692-03** | | | | Prepared: 03/29/22 Analyzed: 04/06/22 | | | | | | | |
| Isophorone | 36.0 | 9.6 | 0.53 | µg/L | 48.1 | ND | 74.9 | | 40-140 | | | |
| 1-Methylnaphthalene | 32.0 | 4.8 | 0.58 | µg/L | 48.1 | ND | 66.5 | | 40-140 | | | |
| 2-Methylnaphthalene | 37.7 | 4.8 | 0.66 | µg/L | 48.1 | ND | 78.5 | | 40-140 | | | |
| 2-Methylphenol | 28.7 | 9.6 | 0.46 | µg/L | 48.1 | ND | 59.6 | | 30-130 | | | |
| 3/4-Methylphenol | 25.3 | 9.6 | 0.44 | µg/L | 48.1 | ND | 52.7 | | 30-130 | | | |
| Naphthalene | 33.5 | 4.8 | 0.59 | µg/L | 48.1 | ND | 69.7 | | 40-140 | | | |
| 2-Nitroaniline | 34.0 | 9.6 | 0.67 | µg/L | 48.1 | ND | 70.7 | | 40-140 | | | |
| 3-Nitroaniline | 37.9 | 9.6 | 0.56 | µg/L | 48.1 | ND | 78.8 | | 40-140 | | | |
| 4-Nitroaniline | 37.8 | 9.6 | 0.58 | µg/L | 48.1 | ND | 78.6 | | 40-140 | | | |
| Nitrobenzene | 32.2 | 9.6 | 0.60 | µg/L | 48.1 | ND | 67.1 | | 40-140 | | | |
| 2-Nitrophenol | 32.3 | 9.6 | 0.49 | µg/L | 48.1 | ND | 67.1 | | 30-130 | | | |
| 4-Nitrophenol | 18.4 | 9.6 | 2.0 | µg/L | 48.1 | ND | 38.3 | | 30-130 | | | |
| **N-Nitrosodimethylamine** B/N - UJ, MSL | 18.6 | 9.6 | 0.75 | µg/L | 48.1 | ND | **38.8** | * | 40-140 | | | MS-09 |
| N-Nitrosodiphenylamine/Diphenylamine | 35.7 | 9.6 | 0.37 | µg/L | 48.1 | ND | 74.3 | | 40-140 | | | |
| N-Nitrosodi-n-propylamine | 29.6 | 9.6 | 0.59 | µg/L | 48.1 | ND | 61.6 | | 40-140 | | | |
| Pentachloronitrobenzene | 36.4 | 9.6 | 0.60 | µg/L | 48.1 | ND | 75.7 | | 40-140 | | | |
| Pentachlorophenol A - within limits - no quals | 22.8 | 9.6 | 3.4 | µg/L | 48.1 | ND | 47.4 | | 30-130 | | | V-05 |
| Phenanthrene | 35.9 | 4.8 | 0.46 | µg/L | 48.1 | ND | 74.7 | | 40-140 | | | |
| **Phenol** UJ, MSL | 12.8 | 9.6 | 0.22 | µg/L | 48.1 | ND | **26.6** | * | 30-130 | | | MS-09 |
| Pyrene | 36.3 | 4.8 | 0.59 | µg/L | 48.1 | ND | 75.5 | | 40-140 | | | |
| **Pyridine** UJ, MSL | 13.6 | 4.8 | 2.4 | µg/L | 48.1 | ND | **28.3** | * | 40-140 | | | MS-09 |
| 1,2,4,5-Tetrachlorobenzene | 35.1 | 9.6 | 0.63 | µg/L | 48.1 | ND | 73.1 | | 40-140 | | | |
| 1,2,4-Trichlorobenzene | 32.7 | 4.8 | 0.64 | µg/L | 48.1 | ND | 68.1 | | 40-140 | | | |
| 2,4,5-Trichlorophenol | 36.8 | 9.6 | 0.49 | µg/L | 48.1 | ND | 76.6 | | 30-130 | | | |
| 2,4,6-Trichlorophenol | 34.0 | 9.6 | 0.43 | µg/L | 48.1 | ND | 70.7 | | 30-130 | | | |
| Surrogate: 2-Fluorophenol | *85.9* | | | µg/L | 192 | | 44.6 | | 15-110 | | | |
| Surrogate: Phenol-d6 | *56.5* | | | µg/L | 192 | | 29.4 | | 15-110 | | | |
| Surrogate: Nitrobenzene-d5 | *70.0* | | | µg/L | 96.2 | | 72.8 | | 30-130 | | | |
| Surrogate: 2-Fluorobiphenyl | *79.3* | | | µg/L | 96.2 | | 82.4 | | 30-130 | | | |
| Surrogate: 2,4,6-Tribromophenol | *166* | | | µg/L | 192 | | 86.4 | | 15-110 | | | |
| Surrogate: p-Terphenyl-d14 | *73.5* | | | µg/L | 96.2 | | 76.5 | | 30-130 | | | |
| **Matrix Spike Dup (B304402-MSD1)** | **Source: 22C1692-03** | | | | Prepared: 03/29/22 Analyzed: 04/06/22 | | | | | | | |
| Acenaphthene | 32.9 | 4.8 | 0.50 | µg/L | 48.1 | ND | 68.5 | | 40-140 | 2.59 | 30 | |
| Acenaphthylene | 36.6 | 4.8 | 0.47 | µg/L | 48.1 | ND | 76.1 | | 40-140 | 1.44 | 30 | |
| Acetophenone | 31.0 | 9.6 | 0.51 | µg/L | 48.1 | ND | 64.4 | | 40-140 | 0.404 | 30 | |
| Aniline | 29.1 | 4.8 | 0.67 | µg/L | 48.1 | ND | 60.6 | | 40-140 | 5.17 | 30 | V-05 |
| Anthracene | 35.7 | 4.8 | 0.44 | µg/L | 48.1 | ND | 74.3 | | 40-140 | 1.84 | 30 | |
| Benzidine | 55.3 | 19 | 10 | µg/L | 48.1 | ND | 115 | | 40-140 | 20.8 | 30 | V-04, V-05, V-35 |
| Benzo(a)anthracene | 35.9 | 4.8 | 0.39 | µg/L | 48.1 | ND | 74.8 | | 40-140 | 1.91 | 30 | |
| Benzo(a)pyrene | 38.5 | 4.8 | 0.55 | µg/L | 48.1 | ND | 80.1 | | 40-140 | 1.14 | 30 | |
| Benzo(b)fluoranthene | 35.7 | 4.8 | 0.45 | µg/L | 48.1 | ND | 74.2 | | 40-140 | 1.71 | 30 | |
| Benzo(g,h,i)perylene | 36.1 | 4.8 | 0.59 | µg/L | 48.1 | ND | 75.1 | | 40-140 | 2.58 | 30 | |
| Benzo(k)fluoranthene | 37.7 | 4.8 | 0.47 | µg/L | 48.1 | ND | 78.3 | | 40-140 | 0.966 | 30 | |
| **Benzoic Acid** Already R, MSL, add MSRPD | 7.40 | 9.6 | 0.0 | µg/L | 48.1 | ND | **15.4** | * | 40-140 | | 30 | MS-09, J |
| Bis(2-chloroethoxy)methane | 31.7 | 9.6 | 0.44 | µg/L | 48.1 | ND | 66.0 | | 40-140 | 1.38 | 30 | |
| Bis(2-chloroethyl)ether | 28.9 | 9.6 | 0.55 | µg/L | 48.1 | ND | 60.1 | | 40-140 | 0.467 | 30 | |
| Bis(2-chloroisopropyl)ether | 32.8 | 9.6 | 0.66 | µg/L | 48.1 | ND | 68.2 | | 40-140 | 1.06 | 30 | |
| Bis(2-Ethylhexyl)phthalate | 34.0 | 9.6 | 0.81 | µg/L | 48.1 | ND | 70.8 | | 40-140 | 5.52 | 30 | |
| 4-Bromophenylphenylether | 34.0 | 9.6 | 0.45 | µg/L | 48.1 | ND | 70.7 | | 40-140 | 0.255 | 30 | |

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B304402 - SW-846 3510C** | | | | | | | | | | | | |
| **Matrix Spike Dup (B304402-MSD1)** | **Source: 22C1692-03** | | | | Prepared: 03/29/22 Analyzed: 04/06/22 | | | | | | | |
| Butylbenzylphthalate | 32.7 | 9.6 | 0.65 | µg/L | 48.1 | ND | 68.0 | | 40-140 | 1.81 | 30 | |
| Carbazole | 34.7 | 9.6 | 0.41 | µg/L | 48.1 | ND | 72.1 | | 40-140 | 0.498 | 30 | |
| 4-Chloroaniline | 34.8 | 9.6 | 0.55 | µg/L | 48.1 | ND | 72.3 | | 40-140 | 5.33 | 30 | V-34 |
| 4-Chloro-3-methylphenol | 31.0 | 9.6 | 0.54 | µg/L | 48.1 | ND | 64.5 | | 30-130 | 1.23 | 30 | |
| 2-Chloronaphthalene | 32.1 | 9.6 | 0.47 | µg/L | 48.1 | ND | 66.8 | | 40-140 | 0.269 | 30 | |
| 2-Chlorophenol | 29.8 | 9.6 | 0.46 | µg/L | 48.1 | ND | 62.0 | | 30-130 | 0.615 | 30 | |
| 4-Chlorophenylphenylether | 34.7 | 9.6 | 0.46 | µg/L | 48.1 | ND | 72.2 | | 40-140 | 1.38 | 30 | |
| Chrysene | 34.1 | 4.8 | 0.38 | µg/L | 48.1 | ND | 70.9 | | 40-140 | 2.83 | 30 | |
| Dibenz(a,h)anthracene | 36.6 | 4.8 | 0.66 | µg/L | 48.1 | ND | 76.2 | | 40-140 | 3.25 | 30 | |
| Dibenzofuran | 38.7 | 4.8 | 0.47 | µg/L | 48.1 | ND | 80.5 | | 40-140 | 0.570 | 30 | |
| Di-n-butylphthalate | 31.7 | 9.6 | 0.44 | µg/L | 48.1 | ND | 66.0 | | 40-140 | 2.04 | 30 | |
| 1,2-Dichlorobenzene | 30.5 | 4.8 | 0.64 | µg/L | 48.1 | ND | 63.5 | | 40-140 | 1.08 | 30 | |
| 1,3-Dichlorobenzene | 30.1 | 4.8 | 0.65 | µg/L | 48.1 | ND | 62.6 | | 40-140 | 1.48 | 30 | |
| 1,4-Dichlorobenzene | 30.3 | 4.8 | 0.64 | µg/L | 48.1 | ND | 63.1 | | 40-140 | 2.57 | 30 | |
| 3,3-Dichlorobenzidine | 39.5 | 9.6 | 0.68 | µg/L | 48.1 | ND | 82.3 | | 40-140 | 4.61 | 30 | V-34 |
| 2,4-Dichlorophenol | 32.5 | 9.6 | 0.46 | µg/L | 48.1 | ND | 67.5 | | 30-130 | 0.884 | 30 | |
| Diethylphthalate | 33.2 | 9.6 | 0.40 | µg/L | 48.1 | ND | 69.1 | | 40-140 | 1.84 | 30 | |
| 2,4-Dimethylphenol | 31.8 | 9.6 | 0.67 | µg/L | 48.1 | ND | 66.1 | | 30-130 | 1.02 | 30 | |
| Dimethylphthalate | 33.5 | 9.6 | 0.36 | µg/L | 48.1 | ND | 69.7 | | 40-140 | 0.743 | 30 | |
| 4,6-Dinitro-2-methylphenol | 31.6 | 9.6 | 6.8 | µg/L | 48.1 | ND | 65.7 | | 30-130 | 0.274 | 30 | |
| 2,4-Dinitrophenol | 27.4 | 9.6 | 7.8 | µg/L | 48.1 | ND | 57.0 | | 30-130 | 1.39 | 30 | |
| 2,4-Dinitrotoluene | 36.0 | 9.6 | 0.59 | µg/L | 48.1 | ND | 75.0 | | 40-140 | 2.53 | 30 | |
| 2,6-Dinitrotoluene | 37.8 | 9.6 | 0.50 | µg/L | 48.1 | ND | 78.5 | | 40-140 | 2.71 | 30 | |
| Di-n-octylphthalate | 33.2 | 9.6 | 3.8 | µg/L | 48.1 | ND | 69.1 | | 40-140 | 4.52 | 30 | |
| 1,2-Diphenylhydrazine/Azobenzene | 33.8 | 9.6 | 0.55 | µg/L | 48.1 | ND | 70.4 | | 40-140 | 0.599 | 30 | |
| Fluoranthene | 34.4 | 4.8 | 0.41 | µg/L | 48.1 | ND | 71.6 | | 40-140 | 2.70 | 30 | |
| Fluorene | 36.4 | 4.8 | 0.50 | µg/L | 48.1 | ND | 75.8 | | 40-140 | 0.317 | 30 | |
| Hexachlorobenzene | 36.6 | 9.6 | 0.49 | µg/L | 48.1 | ND | 76.0 | | 40-140 | 1.75 | 30 | |
| Hexachlorobutadiene | 33.6 | 9.6 | 0.74 | µg/L | 48.1 | ND | 69.8 | | 40-140 | 3.38 | 30 | |
| Hexachlorocyclopentadiene | 25.1 | 9.6 | 3.5 | µg/L | 48.1 | ND | 52.2 | | 30-130 | 1.97 | 30 | V-05 |
| Hexachloroethane | 29.1 | 9.6 | 0.71 | µg/L | 48.1 | ND | 60.6 | | 40-140 | 2.41 | 30 | |
| Indeno(1,2,3-cd)pyrene | 35.1 | 4.8 | 0.71 | µg/L | 48.1 | ND | 73.0 | | 40-140 | 2.04 | 30 | |
| Isophorone | 36.2 | 9.6 | 0.53 | µg/L | 48.1 | ND | 75.3 | | 40-140 | 0.453 | 30 | |
| 1-Methylnaphthalene | 32.1 | 4.8 | 0.58 | µg/L | 48.1 | ND | 66.8 | | 40-140 | 0.510 | 30 | |
| 2-Methylnaphthalene | 37.5 | 4.8 | 0.66 | µg/L | 48.1 | ND | 78.0 | | 40-140 | 0.562 | 30 | |
| 2-Methylphenol | 28.5 | 9.6 | 0.46 | µg/L | 48.1 | ND | 59.3 | | 30-130 | 0.504 | 30 | |
| 3/4-Methylphenol | 25.1 | 9.6 | 0.44 | µg/L | 48.1 | ND | 52.3 | | 30-130 | 0.800 | 30 | |
| Naphthalene | 33.7 | 4.8 | 0.59 | µg/L | 48.1 | ND | 70.1 | | 40-140 | 0.515 | 30 | |
| 2-Nitroaniline | 34.6 | 9.6 | 0.67 | µg/L | 48.1 | ND | 72.0 | | 40-140 | 1.85 | 30 | |
| 3-Nitroaniline | 36.6 | 9.6 | 0.56 | µg/L | 48.1 | ND | 76.1 | | 40-140 | 3.46 | 30 | |
| 4-Nitroaniline | 36.7 | 9.6 | 0.58 | µg/L | 48.1 | ND | 76.3 | | 40-140 | 2.89 | 30 | |
| Nitrobenzene | 31.4 | 9.6 | 0.60 | µg/L | 48.1 | ND | 65.4 | | 40-140 | 2.51 | 30 | |
| 2-Nitrophenol | 32.9 | 9.6 | 0.49 | µg/L | 48.1 | ND | 68.4 | | 30-130 | 1.86 | 30 | |
| 4-Nitrophenol A - within limits - no quals | 17.0 | 9.6 | 2.0 | µg/L | 48.1 | ND | 35.3 | | 30-130 | 8.10 | 30 | |
| **N-Nitrosodimethylamine** Already qual'd - see above | 18.7 | 9.6 | 0.75 | µg/L | 48.1 | ND | **38.8** | * | 40-140 | 0.155 | 30 | MS-09 |
| N-Nitrosodiphenylamine/Diphenylamine | 35.4 | 9.6 | 0.37 | µg/L | 48.1 | ND | 73.6 | | 40-140 | 0.920 | 30 | |
| N-Nitrosodi-n-propylamine | 29.5 | 9.6 | 0.59 | µg/L | 48.1 | ND | 61.5 | | 40-140 | 0.292 | 30 | |
| Pentachloronitrobenzene | 35.7 | 9.6 | 0.60 | µg/L | 48.1 | ND | 74.2 | | 40-140 | 2.05 | 30 | |
| Pentachlorophenol Already qual'd - see above | 22.5 | 9.6 | 3.4 | µg/L | 48.1 | ND | 46.8 | | 30-130 | 1.44 | 30 | V-05 |
| Phenanthrene | 36.0 | 4.8 | 0.46 | µg/L | 48.1 | ND | 74.9 | | 40-140 | 0.241 | 30 | |

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B304402 - SW-846 3510C** | | | | | | | | | | | | |
| **Matrix Spike Dup (B304402-MSD1)** | | **Source: 22C1692-03** | | | Prepared: 03/29/22 Analyzed: 04/06/22 | | | | | | | |
| **Phenol** Already qual'd - see above | 12.5 | 9.6 | 0.22 | µg/L | 48.1 | ND | **26.0** | * | 30-130 | 1.98 | 30 | MS-09 |
| Pyrene | 36.0 | 4.8 | 0.59 | µg/L | 48.1 | ND | 74.9 | | 40-140 | 0.904 | 30 | |
| **Pyridine** Already qual'd - see above | 13.5 | 4.8 | 2.4 | µg/L | 48.1 | ND | **28.1** | * | 40-140 | 0.850 | 30 | MS-09 |
| 1,2,4,5-Tetrachlorobenzene | 34.7 | 9.6 | 0.63 | µg/L | 48.1 | ND | 72.1 | | 40-140 | 1.35 | 30 | |
| 1,2,4-Trichlorobenzene | 33.8 | 4.8 | 0.64 | µg/L | 48.1 | ND | 70.3 | | 40-140 | 3.18 | 30 | |
| 2,4,5-Trichlorophenol | 36.5 | 9.6 | 0.49 | µg/L | 48.1 | ND | 76.0 | | 30-130 | 0.734 | 30 | |
| 2,4,6-Trichlorophenol | 34.7 | 9.6 | 0.43 | µg/L | 48.1 | ND | 72.1 | | 30-130 | 1.90 | 30 | |
| Surrogate: 2-Fluorophenol | *85.4* | | | µg/L | 192 | | 44.4 | | 15-110 | | | |
| Surrogate: Phenol-d6 | *56.5* | | | µg/L | 192 | | 29.4 | | 15-110 | | | |
| Surrogate: Nitrobenzene-d5 | *69.5* | | | µg/L | 96.2 | | 72.2 | | 30-130 | | | |
| Surrogate: 2-Fluorobiphenyl | *77.1* | | | µg/L | 96.2 | | 80.2 | | 30-130 | | | |
| Surrogate: 2,4,6-Tribromophenol | *167* | | | µg/L | 192 | | 86.8 | | 15-110 | | | |
| Surrogate: p-Terphenyl-d14 | *73.3* | | | µg/L | 96.2 | | 76.2 | | 30-130 | | | |

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Project Location: Irvington, NY | Sample Description: | Work Order: 22C1692

Date Received: 3/25/2022

**Field Sample #: 360175-DP003011** | Sampled: 3/22/2022 15:25

**Sample ID: 22C1692-01**

Sample Matrix: Ground Water

**Semivolatile Organic Compounds by GC/MS**

| Analyte | Results | RL | DL | Units | DF | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Fluorene | ND | 4.8 | 0.50 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| Hexachlorobenzene | ND | 9.6 | 0.49 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| Hexachlorobutadiene | ND | 9.6 | 0.74 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| Hexachlorocyclopentadiene | ND | 9.6 | 3.5 | µg/L | 1 | V-05 | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| Hexachloroethane | ND | 9.6 | 0.71 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| Indeno(1,2,3-cd)pyrene | ND | 4.8 | 0.71 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| Isophorone | ND | 9.6 | 0.53 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| 1-Methylnaphthalene | ND | 4.8 | 0.58 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| 2-Methylnaphthalene | ND | 4.8 | 0.66 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| 2-Methylphenol | ND | 9.6 | 0.46 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| 3/4-Methylphenol | ND | 9.6 | 0.44 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| Naphthalene | ND | 4.8 | 0.59 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| 2-Nitroaniline | ND | 9.6 | 0.67 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| 3-Nitroaniline | ND | 9.6 | 0.56 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| 4-Nitroaniline | ND | 9.6 | 0.58 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| Nitrobenzene | ND | 9.6 | 0.60 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| 2-Nitrophenol | ND | 9.6 | 0.49 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| 4-Nitrophenol | ND | 9.6 | 2.0 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| N-Nitrosodimethylamine | ND | 9.6 | 0.75 | µg/L | 1 | L-04 | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| N-Nitrosodiphenylamine/Diphenylamine | ND | 9.6 | 0.37 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| N-Nitrosodi-n-propylamine | ND | 9.6 | 0.59 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| Pentachloronitrobenzene | ND | 9.6 | 0.60 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| Pentachlorophenol | ND | 9.6 | 3.4 | µg/L | 1 | V-05 | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| Phenanthrene | ND | 4.8 | 0.46 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| Phenol | ND | 9.6 | 0.22 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| Pyrene | ND | 4.8 | 0.59 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| Pyridine | ND | 4.8 | 2.4 | µg/L | 1 | R-05 | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| 1,2,4,5-Tetrachlorobenzene | ND | 9.6 | 0.63 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| 1,2,4-Trichlorobenzene | ND | 4.8 | 0.64 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| 2,4,5-Trichlorophenol | ND | 9.6 | 0.49 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |
| 2,4,6-Trichlorophenol | ND | 9.6 | 0.43 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:04 | BGL |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 2-Fluorophenol | 41.6 | 15-110 | | 4/6/22 18:04 |
| Phenol-d6 | 27.5 | 15-110 | | 4/6/22 18:04 |
| Nitrobenzene-d5 | 66.1 | 30-130 | | 4/6/22 18:04 |
| 2-Fluorobiphenyl | 74.1 | 30-130 | | 4/6/22 18:04 |
| 2,4,6-Tribromophenol | 81.6 | 15-110 | | 4/6/22 18:04 |
| p-Terphenyl-d14 | 75.6 | 30-130 | | 4/6/22 18:04 |

Only 1 A surrogate out - no quals

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Project Location: Irvington, NY | Sample Description: | Work Order: 22C1692

Date Received: 3/25/2022

**Field Sample #: 360175-DP004011** | Sampled: 3/22/2022 13:55

**Sample ID: 22C1692-02**

Sample Matrix: Ground Water

**Semivolatile Organic Compounds by GC/MS**

| Analyte | Results | RL | DL | Units | DF | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Fluorene | 0.87 | 4.8 | 0.50 | µg/L | 1 | J | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| Hexachlorobenzene | ND | 9.6 | 0.49 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| Hexachlorobutadiene | ND | 9.6 | 0.74 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| Hexachlorocyclopentadiene | ND | 9.6 | 3.5 | µg/L | 1 | V-05 | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| Hexachloroethane | ND | 9.6 | 0.71 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| Indeno(1,2,3-cd)pyrene | ND | 4.8 | 0.71 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| Isophorone | ND | 9.6 | 0.53 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| 1-Methylnaphthalene | 3.9 | 4.8 | 0.58 | µg/L | 1 | J | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| 2-Methylnaphthalene | 1.4 | 4.8 | 0.66 | µg/L | 1 | J | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| 2-Methylphenol | ND | 9.6 | 0.46 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| 3/4-Methylphenol | ND | 9.6 | 0.44 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| Naphthalene | 0.62 | 4.8 | 0.59 | µg/L | 1 | J | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| 2-Nitroaniline | ND | 9.6 | 0.67 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| 3-Nitroaniline | ND | 9.6 | 0.56 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| 4-Nitroaniline | ND | 9.6 | 0.58 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| Nitrobenzene | ND | 9.6 | 0.60 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| 2-Nitrophenol | ND | 9.6 | 0.49 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| 4-Nitrophenol | ND | 9.6 | 2.0 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| N-Nitrosodimethylamine | ND | 9.6 | 0.75 | µg/L | 1 | L-04 | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| N-Nitrosodiphenylamine/Diphenylamine | ND | 9.6 | 0.37 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| N-Nitrosodi-n-propylamine | ND | 9.6 | 0.59 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| Pentachloronitrobenzene | ND | 9.6 | 0.60 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| Pentachlorophenol | ND | 9.6 | 3.4 | µg/L | 1 | V-05 | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| Phenanthrene | 1.1 | 4.8 | 0.46 | µg/L | 1 | J | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| Phenol | ND | 9.6 | 0.22 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| Pyrene | ND | 4.8 | 0.59 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| Pyridine | ND | 4.8 | 2.4 | µg/L | 1 | R-05 | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| 1,2,4,5-Tetrachlorobenzene | ND | 9.6 | 0.63 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| 1,2,4-Trichlorobenzene | ND | 4.8 | 0.64 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| 2,4,5-Trichlorophenol | ND | 9.6 | 0.49 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |
| 2,4,6-Trichlorophenol | ND | 9.6 | 0.43 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:31 | BGL |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 2-Fluorophenol | 43.1 | 15-110 | | 4/6/22 18:31 |
| Phenol-d6 | 27.4 | 15-110 | | 4/6/22 18:31 |
| Nitrobenzene-d5 | 69.7 | 30-130 | Only 1 A surrogate out - no quals | 4/6/22 18:31 |
| 2-Fluorobiphenyl | 76.6 | 30-130 | | 4/6/22 18:31 |
| 2,4,6-Tribromophenol | 82.1 | 15-110 | | 4/6/22 18:31 |
| p-Terphenyl-d14 | 70.4 | 30-130 | | 4/6/22 18:31 |

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Project Location: Irvington, NY | Sample Description: | Work Order: 22C1692

Date Received: 3/25/2022

**Field Sample #: 360175-DP005011** | Sampled: 3/22/2022 09:50

**Sample ID: 22C1692-03**

Sample Matrix: Ground Water

**Semivolatile Organic Compounds by GC/MS**

| Analyte | Results | RL | DL | Units | DF | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Fluorene | ND | 4.9 | 0.50 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| Hexachlorobenzene | ND | 9.7 | 0.49 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| Hexachlorobutadiene | ND | 9.7 | 0.75 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| Hexachlorocyclopentadiene | ND | 9.7 | 3.6 | µg/L | 1 | V-05 | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| Hexachloroethane | ND | 9.7 | 0.72 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| Indeno(1,2,3-cd)pyrene | ND | 4.9 | 0.72 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| Isophorone | ND | 9.7 | 0.54 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| 1-Methylnaphthalene | ND | 4.9 | 0.58 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| 2-Methylnaphthalene | ND | 4.9 | 0.67 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| 2-Methylphenol | ND | 9.7 | 0.46 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| 3/4-Methylphenol | ND | 9.7 | 0.44 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| Naphthalene | ND | 4.9 | 0.60 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| 2-Nitroaniline | ND | 9.7 | 0.67 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| 3-Nitroaniline | ND | 9.7 | 0.57 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| 4-Nitroaniline | ND | 9.7 | 0.58 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| Nitrobenzene | ND | 9.7 | 0.61 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| 2-Nitrophenol | ND | 9.7 | 0.50 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| 4-Nitrophenol | ND | 9.7 | 2.0 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| N-Nitrosodimethylamine | ND | 9.7 | 0.76 | µg/L | 1 | L-04, MS-09 | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| N-Nitrosodiphenylamine/Diphenylamine | ND | 9.7 | 0.37 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| N-Nitrosodi-n-propylamine | ND | 9.7 | 0.60 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| Pentachloronitrobenzene | ND | 9.7 | 0.60 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| Pentachlorophenol | ND | 9.7 | 3.4 | µg/L | 1 | V-05 | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| Phenanthrene | ND | 4.9 | 0.46 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| Phenol | ND | 9.7 | 0.22 | µg/L | 1 | MS-09 | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| Pyrene | ND | 4.9 | 0.59 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| Pyridine | ND | 4.9 | 2.4 | µg/L | 1 | MS-09, R-05 | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| 1,2,4,5-Tetrachlorobenzene | ND | 9.7 | 0.63 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| 1,2,4-Trichlorobenzene | ND | 4.9 | 0.65 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| 2,4,5-Trichlorophenol | ND | 9.7 | 0.50 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |
| 2,4,6-Trichlorophenol | ND | 9.7 | 0.44 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 18:58 | BGL |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 2-Fluorophenol | 43.3 | 15-110 | | 4/6/22 18:58 |
| Phenol-d6 | 27.6 | 15-110 | Only 1 A surrogate out - no quals | 4/6/22 18:58 |
| Nitrobenzene-d5 | 70.8 | 30-130 | | 4/6/22 18:58 |
| 2-Fluorobiphenyl | 77.1 | 30-130 | | 4/6/22 18:58 |
| 2,4,6-Tribromophenol | 84.2 | 15-110 | | 4/6/22 18:58 |
| p-Terphenyl-d14 | 73.8 | 30-130 | | 4/6/22 18:58 |

GTD 4/28/2022

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A Pace Analytical® Laboratory

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Irvington, NY | Sample Description: | Work Order: 22C1692

Date Received: 3/25/2022

**Field Sample #: 360175-DP005011D** | Sampled: 3/22/2022 09:50

**Sample ID: 22C1692-04**

Sample Matrix: Ground Water

**Semivolatile Organic Compounds by GC/MS**

| Analyte | Results | RL | DL | Units | DF | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Fluorene | ND | 5.0 | 0.51 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| Hexachlorobenzene | ND | 9.9 | 0.50 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| Hexachlorobutadiene | ND | 9.9 | 0.77 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| Hexachlorocyclopentadiene | ND | 9.9 | 3.6 | µg/L | 1 | V-05 | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| Hexachloroethane | ND | 9.9 | 0.73 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| Indeno(1,2,3-cd)pyrene | ND | 5.0 | 0.73 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| Isophorone | ND | 9.9 | 0.55 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| 1-Methylnaphthalene | ND | 5.0 | 0.60 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| 2-Methylnaphthalene | ND | 5.0 | 0.68 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| 2-Methylphenol | ND | 9.9 | 0.47 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| 3/4-Methylphenol | ND | 9.9 | 0.45 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| Naphthalene | ND | 5.0 | 0.61 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| 2-Nitroaniline | ND | 9.9 | 0.69 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| 3-Nitroaniline | ND | 9.9 | 0.58 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| 4-Nitroaniline | ND | 9.9 | 0.59 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| Nitrobenzene | ND | 9.9 | 0.62 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| 2-Nitrophenol | ND | 9.9 | 0.51 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| 4-Nitrophenol | ND | 9.9 | 2.1 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| N-Nitrosodimethylamine | ND | 9.9 | 0.78 | µg/L | 1 | L-04 | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| N-Nitrosodiphenylamine/Diphenylamine | ND | 9.9 | 0.38 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| N-Nitrosodi-n-propylamine | ND | 9.9 | 0.61 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| Pentachloronitrobenzene | ND | 9.9 | 0.62 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| Pentachlorophenol | ND | 9.9 | 3.5 | µg/L | 1 | V-05 | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| Phenanthrene | ND | 5.0 | 0.47 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| Phenol | ND | 9.9 | 0.23 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| Pyrene | ND | 5.0 | 0.61 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| Pyridine | ND | 5.0 | 2.4 | µg/L | 1 | R-05 | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| 1,2,4,5-Tetrachlorobenzene | ND | 9.9 | 0.65 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| 1,2,4-Trichlorobenzene | ND | 5.0 | 0.66 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| 2,4,5-Trichlorophenol | ND | 9.9 | 0.51 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |
| 2,4,6-Trichlorophenol | ND | 9.9 | 0.45 | µg/L | 1 | | SW-846 8270E | 3/29/22 | 4/6/22 19:25 | BGL |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 2-Fluorophenol | 41.5 | 15-110 | | 4/6/22 19:25 |
| Phenol-d6 | 26.9 | 15-110 | | 4/6/22 19:25 |
| Nitrobenzene-d5 | 63.2 | 30-130 | | 4/6/22 19:25 |
| 2-Fluorobiphenyl | 69.7 | 30-130 | | 4/6/22 19:25 |
| 2,4,6-Tribromophenol | 77.8 | 15-110 | | 4/6/22 19:25 |
| p-Terphenyl-d14 | 72.6 | 30-130 | | 4/6/22 19:25 |

Only 1 A surrogate out - no quals

GTD 4/28/2022

# 6 - FORM VI
# INITIAL CALIBRATION DATA SHEET

*SW-846 8270E*

Client: NYDEC Wood - Portland, ME SDG: 22C1692

Project: Irvington Rugs and Cleaners - CO 142890

Calibration: 2200130 Instrument: GCMSSV3

Calibration Date: 2/23/2022 6:57:32AM

| Compound | Level 01 | | Level 02 | | Level 03 | | Level 04 | | Level 05 | | Level 06 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RF | | RF | | RF | | RF | | RF | | RF |
| Acenaphthene | 5 | 1.184065 | 10 | 1.399713 | 20 | 1.346074 | 50 | 1.341448 | 80 | 1.356096 | 100 | 1.437324 |
| Acenaphthylene | 5 | 1.850366 | 10 | 2.074117 | 20 | 2.048663 | 50 | 2.001931 | 80 | 2.01381 | 100 | 2.092592 |
| Acetophenone | 5 | 2.078052 | 10 | 2.417873 | 20 | 2.345057 | 50 | 2.147136 | 80 | 2.072892 | 100 | 2.177372 |
| Aniline | 5 | 0.595466 | 10 | 0.6855373 | 20 | 0.6393816 | 50 | 0.5400291 | 80 | 0.4780118 | 100 | 0.5348932 |
| Anthracene | 5 | 1.106531 | 10 | 1.298484 | 20 | 1.259158 | 50 | 1.214755 | 80 | 1.239211 | 100 | 1.260708 |
| Benzidine | 5 | 0.2636751 | 10 | 0.361212 | 20 | 0.2178175 | 50 | 0.1195017 | 80 | 8.876353E-02 | | |
| Benzo(a)anthracene | 5 | 1.290346 | 10 | 1.505159 | 20 | 1.442826 | 50 | 1.419248 | 80 | 1.406376 | 100 | 1.473945 |
| Benzo(a)pyrene | 5 | 1.094545 | 10 | 1.28263 | 20 | 1.264287 | 50 | 1.275341 | 80 | 1.297714 | 100 | 1.375063 |
| Benzo(b)fluoranthene | 5 | 1.278397 | 10 | 1.467834 | 20 | 1.459067 | 50 | 1.483857 | 80 | 1.526707 | 100 | 1.620165 |
| Benzo(g,h,i)perylene | 5 | 1.029671 | 10 | 1.209389 | 20 | 1.197613 | 50 | 1.195414 | 80 | 1.144289 | 100 | 1.057838 |
| Benzo(k)fluoranthene | 5 | 1.130862 | 10 | 1.315693 | 20 | 1.306101 | 50 | 1.303777 | 80 | 1.337952 | 100 | 1.379969 |
| Benzoic Acid | | | 10 | 0.1817256 | 20 | 0.2013811 | 50 | 0.2277603 | 80 | 0.2352348 | 100 | 0.2574964 |
| Bis(2-chloroethoxy)methane | 5 | 0.4005435 | 10 | 0.4533893 | 20 | 0.4608434 | 50 | 0.4358153 | 80 | 0.4401966 | 100 | 0.4581939 |
| Bis(2-chloroethyl)ether | 5 | 0.921462 | 10 | 1.049313 | 20 | 1.009236 | 50 | 1.007204 | 80 | 0.9873892 | 100 | 0.9619105 |
| Bis(2-chloroisopropyl)ether | 5 | 1.409015 | 10 | 1.604453 | 20 | 1.514591 | 50 | 1.394916 | 80 | 1.330892 | 100 | 1.37103 |
| Bis(2-Ethylhexyl)phthalate | 5 | 0.8133949 | 10 | 0.9508946 | 20 | 0.9289468 | 50 | 0.9221016 | 80 | 0.9333509 | 100 | 0.9678805 |
| 4-Bromophenylphenylether | 5 | 0.2065402 | 10 | 0.2397199 | 20 | 0.2443914 | 50 | 0.2348222 | 80 | 0.2423849 | 100 | 0.2526445 |
| Butylbenzylphthalate | 5 | 0.5838583 | 10 | 0.7052072 | 20 | 0.6789397 | 50 | 0.6663878 | 80 | 0.6807736 | 100 | 0.6923676 |
| Carbazole | 5 | 1.024612 | 10 | 1.188519 | 20 | 1.133639 | 50 | 1.136686 | 80 | 1.160225 | 100 | 1.202371 |
| 4-Chloroaniline | 5 | 0.379796 | 10 | 0.44483 | 20 | 0.4221148 | 50 | 0.3936819 | 80 | 0.3523382 | 100 | 0.3867788 |
| 4-Chloro-3-methylphenol | 5 | 0.3054557 | 10 | 0.3607559 | 20 | 0.3538258 | 50 | 0.3536019 | 80 | 0.3550675 | 100 | 0.3780949 |
| 2-Chloronaphthalene | 5 | 1.34909 | 10 | 1.550398 | 20 | 1.43681 | 50 | 1.479312 | 80 | 1.447029 | 100 | 1.614205 |
| 2-Chlorophenol | 5 | 1.536856 | 10 | 1.800969 | 20 | 1.741048 | 50 | 1.665512 | 80 | 1.627757 | 100 | 1.694974 |
| 4-Chlorophenylphenylether | 5 | 0.6653936 | 10 | 0.7637897 | 20 | 0.7626639 | 50 | 0.7647324 | 80 | 0.7695275 | 100 | 0.8158337 |
| Chrysene | 5 | 1.267557 | 10 | 1.444088 | 20 | 1.360848 | 50 | 1.354376 | 80 | 1.350539 | 100 | 1.386921 |
| Dibenz(a,h)anthracene | 5 | 0.9333214 | 10 | 1.102979 | 20 | 1.097864 | 50 | 1.182887 | 80 | 1.205078 | 100 | 1.196278 |
| Dibenzofuran | 5 | 1.613845 | 10 | 1.794365 | 20 | 1.750149 | 50 | 1.712906 | 80 | 1.721651 | 100 | 1.80394 |
| Di-n-butylphthalate | 5 | 1.193461 | 10 | 1.435714 | 20 | 1.423245 | 50 | 1.396206 | 80 | 1.396834 | 100 | 1.456258 |
| 1,2-Dichlorobenzene | 5 | 1.504395 | 10 | 1.751963 | 20 | 1.68901 | 50 | 1.598656 | 80 | 1.578631 | 100 | 1.64333 |
| 1,3-Dichlorobenzene | 5 | 1.556534 | 10 | 1.787169 | 20 | 1.679807 | 50 | 1.647212 | 80 | 1.678227 | 100 | 1.730407 |
| 1,4-Dichlorobenzene | 5 | 1.576462 | 10 | 1.835316 | 20 | 1.745265 | 50 | 1.720745 | 80 | 1.701063 | 100 | 1.775121 |

# 6 - FORM VI
# INITIAL CALIBRATION DATA SHEET (Continued)

*SW-846 8270E*

Client: NYDEC_Wood - Portland, ME SDG: 22C1692

Project: Irvington Rugs and Cleaners - CO 142890

Calibration: 2200130 Instrument: GCMSSV3

Calibration Date: 2/23/2022 6:57:32AM

| Compound | Level 07 | | Level 08 | | Level 09 | | Level 10 | | Level 11 | | Level 12 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RF | | RF | | RF | | RF | | RF | | RF |
| Acenaphthene | 120 | 1.512147 | 2 | 1.235154 | | | | | | | | |
| Acenaphthylene | 120 | 2.207035 | 2 | 1.873102 | | | | | | | | |
| Acetophenone | 120 | 2.304695 | | | | | | | | | | |
| Aniline | 120 | 0.547166 | | | | | | | | | | |
| Anthracene | 120 | 1.319501 | 2 | 1.166521 | | | | | | | | |
| Benzidine | | | 2 | 0.2864639 | | | | | | | | |
| Benzo(a)anthracene | 120 | 1.569387 | 2 | 1.399451 | | | | | | | | |
| Benzo(a)pyrene | 120 | 1.438999 | 2 | 1.152746 | | | | | | | | |
| Benzo(b)fluoranthene | 120 | 1.701777 | 2 | 1.302799 | | | | | | | | |
| Benzo(g,h,i)perylene | 120 | 1.052745 | 2 | 1.046929 | | | | | | | | |
| Benzo(k)fluoranthene | 120 | 1.482046 | 2 | 1.186648 | | | | | | | | |
| Benzoic Acid | 120 | 0.2700966 | | | | | | | | | | |
| Bis(2-chloroethoxy)methane | 120 | 0.4865982 | | | | | | | | | | |
| Bis(2-chloroethyl)ether | 120 | 1.042876 | | | | | | | | | | |
| Bis(2-chloroisopropyl)ether | 120 | 1.501762 | | | | | | | | | | |
| Bis(2-Ethylhexyl)phthalate | 120 | 1.017092 | 2 | 0.849588 | | | | | | | | |
| 4-Bromophenylphenylether | 120 | 0.2675229 | | | | | | | | | | |
| Butylbenzylphthalate | 120 | 0.7529338 | | | | | | | | | | |
| Carbazole | 120 | 1.252782 | | | | | | | | | | |
| 4-Chloroaniline | 120 | 0.3789389 | | | | | | | | | | |
| 4-Chloro-3-methylphenol | 120 | 0.3917801 | | | | | | | | | | |
| 2-Chloronaphthalene | 120 | 1.636767 | | | | | | | | | | |
| 2-Chlorophenol | 120 | 1.858333 | | | | | | | | | | |
| 4-Chlorophenylphenylether | 120 | 0.8627534 | | | | | | | | | | |
| Chrysene | 120 | 1.486198 | 2 | 1.3047 | | | | | | | | |
| Dibenz(a,h)anthracene | 120 | 1.20997 | 2 | 0.9665538 | | | | | | | | |
| Dibenzofuran | 120 | 1.869949 | 2 | 1.657282 | | | | | | | | |
| Di-n-butylphthalate | 120 | 1.511917 | | | | | | | | | | |
| 1,2-Dichlorobenzene | 120 | 1.744091 | | | | | | | | | | |
| 1,3-Dichlorobenzene | 120 | 1.818492 | | | | | | | | | | |
| 1,4-Dichlorobenzene | 120 | 1.856503 | | | | | | | | | | |

# 6 - FORM VI
# INITIAL CALIBRATION DATA SHEET (Continued)

## SW-846 8270E

| | | | |
|---|---|---|---|
| Laboratory: | Con-Test, a Pace Analytical Laboratory | Work Order: | 22C1692 |
| Client: | NYDEC_Wood - Portland, ME | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Calibration: | 2200130 | Instrument: | GCMSSV3 |
| | | Calibration Date: | 2/23/2022 6:57:32AM |

| COMPOUND | Mean RF | RF RSD | Linear $r^2$ | Quad COD | LIMIT | Q |
|---|---|---|---|---|---|---|
| Acenaphthene | 1.351503 | 7.8 | | | 20 | |
| Acenaphthylene | 2.020202 | 5.8 | | | 20 | |
| Acetophenone | 2.22044 | 6.1 | | | 20 | |
| Aniline | 0.574355 | 12.3 | | | 20 | |
| Anthracene | 1.233109 | 5.7 | | | 20 | |
| Benzidine | 0.2229056 | 46.4 | | | 20 | * |
| Benzo(a)anthracene | 1.438342 | 5.7 | | | 20 | |
| Benzo(a)pyrene | 1.272666 | 8.7 | | | 20 | |
| Benzo(b)fluoranthene | 1.480075 | 9.7 | | | 20 | |
| Benzo(g,h,i)perylene | 1.116736 | 6.9 | | | 20 | |
| Benzo(k)fluoranthene | 1.305381 | 8.3 | | | 20 | |
| Benzoic Acid | 0.2289491 | 14.5 | | | 20 | |
| Bis(2-chloroethoxy)methane | 0.44794 | 5.9 | | | 20 | |
| Bis(2-chloroethyl)ether | 0.9970558 | 4.5 | | | 20 | |
| Bis(2-chloroisopropyl)ether | 1.446666 | 6.7 | | | 20 | |
| Bis(2-Ethylhexyl)phthalate | 0.9229062 | 7.0 | | | 20 | |
| 4-Bromophenylphenylether | 0.2411466 | 7.7 | | | 20 | |
| Butylbenzylphthalate | 0.6800669 | 7.5 | | | 20 | |
| Carbazole | 1.156976 | 6.2 | | | 20 | |
| 4-Chloroaniline | 0.3940684 | 7.7 | | | 20 | |
| 4-Chloro-3-methylphenol | 0.3569403 | 7.5 | | | 20 | |
| 2-Chloronaphthalene | 1.501944 | 6.9 | | | 20 | |
| 2-Chlorophenol | 1.703636 | 6.3 | | | 20 | |
| 4-Chlorophenylphenylether | 0.7720992 | 7.8 | | | 20 | |
| Chrysene | 1.369403 | 5.1 | | | 20 | |
| Dibenz(a,h)anthracene | 1.111866 | 9.8 | | | 20 | |
| Dibenzofuran | 1.740511 | 4.8 | | | 20 | |
| Di-n-butylphthalate | 1.401948 | 7.1 | | | 20 | |
| 1,2-Dichlorobenzene | 1.644297 | 5.5 | | | 20 | |
| 1,3-Dichlorobenzene | 1.699693 | 5.2 | | | 20 | |
| 1,4-Dichlorobenzene | 1.744354 | 5.4 | | | 20 | |

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\C022322\
Data File : C2205406.D
Acq On : 23 Feb 2022 9:10 am
Operator : BGL
Sample : 8270std 20ppm 2111135 Inst : GCMSSV3
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 23 15:03:57 2022
Quant Method : C:\msdchem\1\methods\BNC02232.M
Quant Title : SVMS3 (C)- PAHs 2ppm
QLast Update : Wed Feb 23 14:57:58 2022
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1,4-Dichlorobenzene-D4 | 3.315 | 152 | 59764 | 40.00 | ug/ml | 0.00 |
| 19) NAPHTHALENE-d8 | 4.044 | 136 | 255883 | 40.00 | ug/ml | 0.00 |
| 35) ACENAPHTHENE-D10 | 5.112 | 164 | 150546 | 40.00 | ug/ml | 0.00 |
| 58) PHENANTHRENE-D10 | 6.034 | 188 | 271769 | 40.00 | ug/ml | 0.00 |
| 71) CHRYSENE-D12 | 8.498 | 240 | 247969 | 40.00 | ug/ml | 0.00 |
| 80) PERYLENE-D12 | 11.026 | 264 | 229777 | 40.00 | ug/ml | 0.00 |
| System Monitoring Compounds | | | | | | |
| 2) 2-Fluorophenol | 2.643 | 112 | 63999 | 41.47 | ug/ml | 0.00 |
| Spiked Amount 200.000 | Range 30 - 130 | | Recovery = 20.73%# | | | |
| 3) Phenol-d6 | 3.093 | 99 | 111752 | 43.09 | ug/ml | 0.00 |
| Spiked Amount 200.000 | Range 30 - 130 | | Recovery = 21.55%# | | | |
| 20) Nitrobenzene-d5 | 3.619 | 82 | 48807 | 21.13 | ug/ml | 0.00 |
| Spiked Amount 100.000 | Range 30 - 130 | | Recovery = 21.13%# | | | |
| 36) 2-Fluorobiphenyl | 4.687 | 172 | 104149 | 20.71 | ug/ml | 0.00 |
| Spiked Amount 100.000 | Range 30 - 130 | | Recovery = 20.71%# | | | |
| 37) 2,4,6-Tribromophenol | 5.599 | 330 | 24322 | 37.76 | ug/ml | 0.00 |
| Spiked Amount 200.000 | Range 30 - 130 | | Recovery = 18.88%# | | | |
| 72) Terphenyl-d14 | 7.226 | 244 | 139703 | 20.54 | ug/ml | 0.00 |
| Spiked Amount 100.000 | Range 30 - 130 | | Recovery = 20.54%# | | | |
| Target Compounds | | | | | | Qvalue |
| 4) N-Nitrosodimethylamine | 2.017 | 42 | 17013 | 19.60 | ug/ml# | 81 |
| 5) Pyridine | 2.046 | 79 | 39324 | 19.32 | ug/ml | 92 |
| 6) Aniline | 3.132 | 66 | 19106 | 22.26 | ug/ml | 94 |
| 7) Phenol | 3.101 | 94 | 63967 | 20.68 | ug/ml | 89 |
| 8) Bis(2-chloroethyl)ether | 3.153 | 63 | 30158 | 20.24 | ug/ml | 100 |
| 9) 2-Chlorophenol | 3.202 | 128 | 52026 | 20.44 | ug/ml | 98 |
| 10) 1,3-Dichlorobenzene | 3.287 | 146 | 50196 | 19.77 | ug/ml | 99 |
| 11) 1,4-Dichlorobenzene | 3.325 | 146 | 52152 | 20.01 | ug/ml | 99 |
| 12) 1,2-Dichlorobenzene | 3.410 | 146 | 50471 | 20.54 | ug/ml | 97 |
| 13) 2- METHYLPHENOL | 3.431 | 108 | 45693 | 21.12 | ug/ml | 91 |
| 14) Bis(2-Chloroisopropyl)... | 3.446 | 45 | 45259 | 20.94 | ug/ml | 85 |
| 15) Acetophenone | 3.529 | 105 | 70075 | 21.12 | ug/ml | 94 |
| 16) 3/4- METHYLPHENOL | 3.513 | 107 | 108414 | 41.82 | ug/ml | 97 |
| 17) N-Nitroso-Di-N-Propyla... | 3.521 | 70 | 36472 | 21.11 | ug/ml | 98 |
| 18) Hexachloroethane | 3.601 | 117 | 19523 | 20.74 | ug/ml | 93 |
| 21) NITROBENZENE | 3.632 | 77 | 49958 | 19.94 | ug/ml | 96 |
| 22) Isophorone | 3.763 | 82 | 88916 | 20.33 | ug/ml | 99 |
| 23) 2-Nitrophenol | 3.814 | 139 | 29181 | 19.45 | ug/ml | 87 |
| 24) 2,4-Dimethylphenol | 3.822 | 122 | 49172 | 19.84 | ug/ml | 98 |
| 25) Bis(2-Chloroethoxy)met... | 3.876 | 93 | 58961 | 20.58 | ug/ml | 98 |
| 26) Benzoic Acid | 3.861 | 122 | 25765 | 17.59 | ug/ml | 88 |
| 27) 2,4-Dichlorophenol | 3.953 | 162 | 45848 | 19.82 | ug/ml | 98 |
| 28) 1,2,4-Trichlorobenzene | 4.005 | 180 | 44738 | 19.51 | ug/ml | 96 |
| 29) Naphthalene | 4.056 | 128 | 150523 | 20.14 | ug/ml | 99 |
| 30) 4-Chloroaniline | 4.077 | 127 | 54006 | 21.42 | ug/ml | 96 |
| 31) Hexachlorobutadiene | 4.121 | 225 | 24589 | 19.96 | ug/ml | 99 |
| 32) 4-Chloro-3-Methylphenol | 4.360 | 107 | 45269 | 19.83 | ug/ml | 96 |
| 33) 2-MethylNaphthalene | 4.471 | 142 | 93487 | 20.23 | ug/ml | 94 |
| 34) 1-Methylnaphthalene | 4.533 | 142 | 103502 | 19.99 | ug/ml | 96 |
| 38) Hexachlorocyclopentadiene | 4.564 | 237 | 15378 | 17.54 | ug/ml | 97 |
| 39) 1,2,4,5-Tetrachloroben... | 4.571 | 216 | 48025 | 19.88 | ug/ml | 99 |
| 40) 2,4,6-Trichlorophenol | 4.638 | 196 | 32079 | 19.46 | ug/ml | 98 |
| 41) 2,4,5-Trichlorophenol | 4.664 | 196 | 31102 | 19.32 | ug/ml | 95 |

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\C022322\
Data File : C2205406.D
Acq On : 23 Feb 2022 9:10 am
Operator : BGL
Sample : 8270std 20ppm 2111135 Inst : GCMSSV3
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 23 15:03:57 2022
Quant Method : C:\msdchem\1\methods\BNC02232.M
Quant Title : SVMS3 (C)- PAHs 2ppm
QLast Update : Wed Feb 23 14:57:58 2022
Response via : Initial Calibration

| | Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|---|
| 42) | 2-ChloroNaphthalene | 4.770 | 162 | 108153 | 21.30 | ug/ml | 99 |
| 43) | 2-Nitroaniline | 4.824 | 65 | 24502 | 19.64 | ug/ml | 90 |
| 44) | 1,1-Biphenyl | 4.752 | 154 | 120276 | 19.59 | ug/ml | 98 |
| 45) | DIMETHYL PHTHALATE | 4.927 | 163 | 114262 | 20.09 | ug/ml | 99 |
| 46) | 2,6-DinitroToluene | 4.968 | 165 | 24421 | 19.68 | ug/ml | 90 |
| 47) | Acenaphthylene | 5.027 | 152 | 154209 | 20.28 | ug/ml | 99 |
| 48) | 3-Nitroaniline | 5.076 | 138 | 27205 | 21.05 | ug/ml | 93 |
| 49) | Acenaphthene | 5.133 | 154 | 101323 | 19.92 | ug/ml | 98 |
| 50) | 2,4-Dinitrophenol | 5.143 | 184 | 11601 | 16.02 | ug/ml | 93 |
| 51) | 4-Nitrophenol | 5.171 | 109 | 13248 | 19.61 | ug/ml# | 64 |
| 52) | Dibenzofuran | 5.238 | 168 | 131739 | 20.11 | ug/ml | 93 |
| 53) | 2,4-Dinitrotoluene | 5.220 | 165 | 33388 | 19.86 | ug/ml | 94 |
| 54) | DIETHYL PHTHALATE | 5.359 | 149 | 107554 | 19.85 | ug/ml | 97 |
| 55) | 4-Chlorophenyl phenyl ... | 5.439 | 204 | 57408 | 19.76 | ug/ml | 98 |
| 56) | Flourene | 5.449 | 166 | 114610 | 20.11 | ug/ml | 98 |
| 57) | 4-Nitroaniline | 5.452 | 138 | 27247 | 19.21 | ug/ml# | 83 |
| 59) | 4,6-Dinitro-2-Methylph... | 5.475 | 198 | 17812 | 17.76 | ug/ml | 95 |
| 60) | N-Nitrosodiphenylamine | 5.511 | 169 | 83099 | 17.37 | ug/ml | 98 |
| 61) | 1,2-Diphenylhydrazine | 5.539 | 77 | 100565 | 20.76 | ug/ml | 95 |
| 62) | 4-Bromophenyl phenyl e... | 5.743 | 248 | 33209 | 20.27 | ug/ml | 98 |
| 63) | Hexachlorobenzene | 5.792 | 284 | 30311 | 19.81 | ug/ml | 99 |
| 64) | Pentachlorophenol | 5.910 | 266 | 18873 | 18.53 | ug/ml | 100 |
| 65) | Pentachloronitrobenzene | 5.918 | 295 | 5428 | 19.73 | ug/ml# | 90 |
| 66) | Phenanthrene | 6.047 | 178 | 165156 | 20.24 | ug/ml | 98 |
| 67) | Anthracene | 6.080 | 178 | 171100 | 20.42 | ug/ml | 99 |
| 68) | Carbazole | 6.175 | 167 | 154044 | 19.60 | ug/ml | 98 |
| 69) | Di-N-Butyl Phthalate | 6.384 | 149 | 193397 | 20.30 | ug/ml | 99 |
| 70) | Flouranthene | 6.899 | 202 | 182474 | 20.13 | ug/ml | 97 |
| 73) | Benzidine | 6.994 | 184 | 27006 | 19.54 | ug/ml | 97 |
| 74) | Pyrene | 7.100 | 202 | 191466 | 20.43 | ug/ml | 99 |
| 75) | Butylbenzyl phthalate | 7.738 | 149 | 84178 | 19.97 | ug/ml | 98 |
| 76) | 3,3'-Dichlorobenzidine | 8.441 | 252 | 57431 | 20.79 | ug/ml | 99 |
| 77) | Benzo(a)anthracene | 8.482 | 228 | 178888 | 20.06 | ug/ml | 99 |
| 78) | Chrysene | 8.534 | 228 | 168724 | 19.88 | ug/ml | 100 |
| 79) | Bis(2-ethylhexyl)phtha... | 8.529 | 149 | 115175 | 20.13 | ug/ml | 98 |
| 81) | Di-n-octylphthalate | 9.657 | 149 | 187389 | 19.65 | ug/ml | 97 |
| 82) | Benzo(b)fluoranthene | 10.290 | 252 | 167630 | 19.72 | ug/ml | 97 |
| 83) | Benzo(k)fluoranthene | 10.344 | 252 | 150056 | 20.01 | ug/ml | 95 |
| 84) | Benzo(a)pyrene | 10.916 | 252 | 145252 | 19.87 | ug/ml | 96 |
| 85) | Indeno(1,2,3-cd)pyrene | 12.957 | 276 | 126425 | 20.50 | ug/ml | 92 |
| 86) | Dibenz(a,h)anthracene | 12.996 | 278 | 126132 | 20.29 | ug/ml | 93 |
| 87) | Benzo(g,h,i)perylene | 13.349 | 276 | 137592 | 21.45 | ug/ml | 92 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

328

Data Path : C:\msdchem\1\data\C040622\
Data File : C2209610.D
Acq On : 6 Apr 2022 6:31 pm
Operator : BGL
Sample : 22C1692-02 Inst : GCMSSV3
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Apr 06 18:45:21 2022
Quant Method : C:\MSDCHEM\1\METHODS\BNC02232.M
Quant Title : SVMS3 (C)- PAHs 2ppm
QLast Update : Tue Mar 22 12:32:10 2022
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1,4-Dichlorobenzene-D4 | 3.273 | 152 | 47147 | 40.00 | ug/ml | #-0.01 |
| 19) NAPHTHALENE-d8 | 4.001 | 136 | 181250 | 40.00 | ug/ml | 0.00 |
| 35) ACENAPHTHENE-D10 | 5.067 | 164 | 103333 | 40.00 | ug/ml | -0.01 |
| 58) PHENANTHRENE-D10 | 5.989 | 188 | 194118 | 40.00 | ug/ml | -0.02 |
| 71) CHRYSENE-D12 | 8.427 | 240 | 184220 | 40.00 | ug/ml | -0.03 |
| 80) PERYLENE-D12 | 10.953 | 264 | 182834 | 40.00 | ug/ml | -0.03 |
| System Monitoring Compounds | | | | | | |
| 2) 2-Fluorophenol | 2.613 | 112 | 104832 | 86.12 | ug/ml | 0.00 |
| Spiked Amount 200.000 | Range 30 - 130 | | Recovery = 43.06% | | | |
| 3) Phenol-d6 | 3.069 | 99 | 112060 | 54.77 | ug/ml | 0.00 |
| Spiked Amount 200.000 | Range 30 - 130 | | Recovery = 27.39%# | | | |
| 20) Nitrobenzene-d5 | 3.579 | 82 | 113973 | 69.65 | ug/ml | -0.01 |
| Spiked Amount 100.000 | Range 30 - 130 | | Recovery = 69.65% | | | |
| 36) 2-Fluorobiphenyl | 4.642 | 172 | 264379 | 76.59 | ug/ml | -0.01 |
| Spiked Amount 100.000 | Range 30 - 130 | | Recovery = 76.59% | | | |
| 37) 2,4,6-Tribromophenol | 5.556 | 330 | 72564 | 164.11 | ug/ml | -0.02 |
| Spiked Amount 200.000 | Range 30 - 130 | | Recovery = 82.06% | | | |
| 72) Terphenyl-d14 | 7.166 | 244 | 355836 | 70.42 | ug/ml | -0.02 |
| Spiked Amount 100.000 | Range 30 - 130 | | Recovery = 70.42% | | | |
| Target Compounds | | | | | | Qvalue |
| 29) Naphthalene | 4.014 | 128 | 3468 | 0.65 | ug/ml# | 52 |
| 33) 2-MethylNaphthalene | 4.426 | 142 | 4879 | 1.49 | ug/ml | 98 |
| 34) 1-Methylnaphthalene | 4.488 | 142 | 15011m | 4.09 | ug/ml | |
| 44) 1,1-Biphenyl | 4.707 | 154 | 4346 | 1.03 | ug/ml | 98 |
| 49) Acenaphthene | 5.088 | 154 | 1535 | 0.44 | ug/ml# | 54 |
| 52) Dibenzofuran | 5.193 | 168 | 2968 | 0.66 | ug/ml | 90 |
| 56) Flourene | 5.407 | 166 | 3537 | 0.90 | ug/ml | 91 |
| 66) Phenanthrene | 6.004 | 178 | 6790 | 1.16 | ug/ml | 94 |
| 68) Carbazole | 6.136 | 167 | 1163 | 0.21 | ug/ml | 91 |
| 79) Bis(2-ethylhexyl)phtha... | 8.440 | 149 | 2233 | 0.53 | ug/ml# | 89 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

# 1 - FORM I
# ANALYSIS DATA SHEET

360175-DP004011

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Con-Test, a Pace Analytical Labora | | | Work Order: | 22C1692 |
| Client: | NYDEC_Wood - Portland, ME | | | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Matrix: | Ground Water | Laboratory ID: | 22C1692-02 | File ID: | C2209610.D |
| Sampled: | 03/22/22 13:55 | Prepared: | 03/29/22 11:51 | Analyzed: | 04/06/22 18:31 |
| Solids: | | Preparation: | SW-846 3510C | Dilution: | 1 |
| Initial/Final: | 1040 mL / 1 mL | | | | |
| Batch: | B304402 | Sequence: | S070076 | Calibration: | 2200130 | Instrument: | GCMSSV3 |

| CAS NO. | COMPOUND | CONC. (µg/L) | MDL | RL | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | | 0.50 | 4.8 | |
| 208-96-8 | Acenaphthylene | | 0.47 | 4.8 | |
| 98-86-2 | Acetophenone | | 0.51 | 9.6 | |
| 62-53-3 | Aniline | | 0.67 | 4.8 | V-05 |
| 120-12-7 | Anthracene | | 0.44 | 4.8 | |
| 92-87-5 | Benzidine | | 10 | 19 | )5, V-04, V-05, V |
| 56-55-3 | Benzo(a)anthracene | | 0.39 | 4.8 | |
| 50-32-8 | Benzo(a)pyrene | | 0.55 | 4.8 | |
| 205-99-2 | Benzo(b)fluoranthene | | 0.45 | 4.8 | |
| 191-24-2 | Benzo(g,h,i)perylene | | 0.59 | 4.8 | |
| 207-08-9 | Benzo(k)fluoranthene | | 0.47 | 4.8 | |
| 65-85-0 | Benzoic Acid | | 8.1 | 9.6 | R-05 |
| 111-91-1 | Bis(2-chloroethoxy)methane | | 0.44 | 9.6 | |
| 111-44-4 | Bis(2-chloroethyl)ether | | 0.55 | 9.6 | |
| 108-60-1 | Bis(2-chloroisopropyl)ether | | 0.66 | 9.6 | |
| 117-81-7 | Bis(2-Ethylhexyl)phthalate | | 0.81 | 9.6 | |
| 101-55-3 | 4-Bromophenylphenylether | | 0.45 | 9.6 | |
| 85-68-7 | Butylbenzylphthalate | | 0.65 | 9.6 | |
| 86-74-8 | Carbazole | | 0.41 | 9.6 | |
| 106-47-8 | 4-Chloroaniline | | 0.55 | 9.6 | V-34 |
| 59-50-7 | 4-Chloro-3-methylphenol | | 0.54 | 9.6 | |
| 91-58-7 | 2-Chloronaphthalene | | 0.47 | 9.6 | |
| 95-57-8 | 2-Chlorophenol | | 0.46 | 9.6 | |
| 7005-72-3 | 4-Chlorophenylphenylether | | 0.46 | 9.6 | |
| 218-01-9 | Chrysene | | 0.38 | 4.8 | |
| 53-70-3 | Dibenz(a,h)anthracene | | 0.66 | 4.8 | |
| 132-64-9 | Dibenzofuran | 0.63 ✓ | 0.47 | 4.8 | J |
| 84-74-2 | Di-n-butylphthalate | | 0.44 | 9.6 | |
| 95-50-1 | 1,2-Dichlorobenzene | | 0.64 | 4.8 | |
| 541-73-1 | 1,3-Dichlorobenzene | | 0.65 | 4.8 | |

DUSR Calculations Sheet

**Sample ID:** 360175-DP004011
**TC:** Dibenzofuran
**ICAL Level:**
**Val File Result for TC:** 0.63 ug/L

## Ical Calc

| | |
|---|---|
| **Area TC** | 131739 |
| **Area IS** | 150546 |
| **Conc TC** | 20 |
| **Conc IS** | 40 |
| **RRF =** | 1.7501495 |

| | |
|---|---|
| **1** | 1.613845 |
| **2** | 1.794365 |
| **3** | 1.750149 |
| **4** | 1.712906 |
| **5** | 1.721651 |
| **6** | 1.80394 |
| **7** | 1.869949 |
| **8** | 1.657282 |
| **9** | |
| **10** | |
| **Avg RRF =** | 1.740511 |
| **Std Dev =** | 0.082687 |
| **%RSD =** | 4.750716 |

## Sample Calc

| | |
|---|---|
| **Area TC** | 2968 |
| **Area IS** | 103333 |
| **Conc IS** | 40 |
| **Avg RRF** | 1.7405109 |
| **Conc TC =** | 0.6600975 ug/mL |

| | |
|---|---|
| **DF** | 1 |
| **Initial Vol** | 1040 |
| **Final Vol** | 1 |
| **Conc TC (w prep** | 0.000635 ug/mL |
| Conv to ug/L | 0.634709 ug/L |

Notes:
Green = matched reported value
Red = did not match reported value

# PESTICIDES

**NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD**
**Project:** Irvington Rugs and Cleaners March 2022
**Method:** 8081B
**Laboratory:** Con-test **SDG(s):** 22C1692
**Date:** 4/28/2022
**Reviewer:** Gabrielle Davis

**Review Level** [X] NYSDEC DUSR [ ] USEPA Region II Guideline

1. ☑ **Case Narrative Review and Data Package Completeness** COMMENTS
   Were problems noted? Yes, see attached
   Are Field Sample IDs and Locations assigned correctly? YES NO (circle one)
   Were all the samples on the COC analyzed for the requested analyses? YES NO (circle one)
2. ☑ **Holding time (HT) and Sample Collection** Sample 22C1692-01 shouls be 360175-DP002011

   Soil: 14 days from collection to extraction; 40 days from extraction to analysis
   Water: 7 days from collection to extraction; 40 days from extraction to analysis
   Hold time met for all samples? YES NO (circle one)

3. ☑ **QC Blanks**
   Are method blanks free of contamination? YES NO (circle one)
   Are Rinse blanks free of contamination? YES NO NA (circle one)

4. ☑ **Second Column Confirmation – Data Package Narrative Review**
   Did the laboratory narrative identify sample results for which the percent difference between columns was ≥ 25 (Region II criteria) for PCBs? YES NO NA (circle one)

   Did the laboratory qualify results based on the percent difference between columns? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed

5. ☑ **Instrument Calibration – Data Package Narrative Review**
   Did the laboratory narrative identify compounds that were not within criteria in the initial and/or continuing calibration standards? YES NO (circle one) Not associated with samples

   Initial Calibration criteria %RSD=20 (alpha-BHC, delta-BHC = 25, Toxaphene = 30)
   Continuing Calibration criteria %D=20

   Did the laboratory qualify results based on initial or continuing calibration exceedances? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed

6. ☑ **Surrogate Recovery** (soil and water limits: 30-150%)

   Were all results within limits? YES NO (circle one)

7. ☑ **Matrix Spike** (Use lab limits; refer to limits listed in SOP HW-44 Oct 2006 if no lab limits are listed)

   Were MS/MSDs submitted/analyzed? YES NO

   Were all results within laboratory limits? YES NO NA (circle one)

8. ☑ **Field Duplicates** (RPD limits for soil=100, water = 50)

   Were Field Duplicates submitted/analyzed? YES NO

   Were RPDs within the limits? YES NO NA (circle one) All ND

GTD 4/28/2022

9. ☑ **Laboratory Control Samples** (Use lab limits; refer to limits in SOP HW-44 Oct 2006 if no lab limits)

Were all results within laboratory limits? YES NO (circle one)
Limits used were: Lab Limits Region II SOP HW-44 Oct 2006 (circle one)

10. ☑ **Raw Data Review and Calculation Checks**
See attached

11. ☑ **Electronic Data Review and Edits**
Does the EDD match the Form Is? YES NO (circle one)

12. ☑ **Tables Review**
**Table 1** (Samples and Analytical Methods)
**Table 2** (Analytical Results)
**Table 3** (Qualification Actions)
Were all tables produced and reviewed? YES NO (circle one)

GTD 4/28/2022

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

**SW-846 6010D**

**Qualifications:**

**MS-19**

Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.

**Analyte & Samples(s) Qualified:**

**Calcium**
22C1692-03[360175-DP005011], B305111-MSD1

**Magnesium**
22C1692-03[360175-DP005011], B305111-MSD1

**Sodium**
22C1692-03[360175-DP005011], B305111-MSD1

**V-20**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

**Analyte & Samples(s) Qualified:**

**Beryllium**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D]

**Thallium**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D]

**SW-846 7470A**

**Qualifications:**

**B**

Analyte is found in the associated laboratory blank as well as in the sample.

**Analyte & Samples(s) Qualified:**

**Mercury**
22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-04[360175-DP005011D], B305219-BLK1

**L-07**

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.

**Analyte & Samples(s) Qualified:**

**Mercury**
B305408-BSD1

**SW-846 8081B**

**Qualifications:**

**V-06**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

**Analyte & Samples(s) Qualified:**

**Hexachlorobenzene**
B304396-BS1, B304396-BSD1, B304396-MS1, B304396-MSD1 Not associated with samples - no quals

**SW-846 8260D**

**Qualifications:**

**MS-07A**

Matrix spike and spike duplicate recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possibility of matrix effects that lead to low bias or non-homogeneous sample aliquot cannot be eliminated.

**Analyte & Samples(s) Qualified:**

**Naphthalene**
22C1692-03[360175-DP005011], B304257-MS1, B304257-MSD1

GTD 4/28/2022

# 6 - FORM VI
# INITIAL CALIBRATION DATA SHEET (Continued)

*SW-846 8081B*

Client: NYDEC_Wood - Portland, ME SDG: 22C1692

Project: Irvington Rugs and Cleaners - CO 142890

Calibration: 2200152 Instrument: ECD2

Calibration Date: 3/28/2022 12:00:57AM

| Compound | Level 07 | | Level 08 | | Level 09 | | Level 10 | | Level 11 | | Level 12 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RF | | RF | | RF | | RF | | RF | | RF |
| Endrin [2C] | | | 0.1 | 0 | 1 | 0 | 5 | 1.460301E+07 | 10 | 1.421E+07 | 20 | 1.537E+07 |
| Endrin Aldehyde | | | 0.1 | 0 | 1 | 0 | 5 | 7724151 | 10 | 7113591 | 20 | 7295000 |
| Endrin Aldehyde [2C] | | | 0.1 | 0 | 1 | 0 | 5 | 1.149717E+07 | 10 | 1.09E+07 | 20 | 1.1275E+07 |
| Endrin Ketone | | | 0.1 | 0 | 1 | 0 | 5 | 9747360 | 10 | 9098677 | 20 | 9405000 |
| Endrin Ketone [2C] | | | 0.1 | 0 | 1 | 0 | 5 | 1.580253E+07 | 10 | 1.499E+07 | 20 | 1.5655E+07 |
| Heptachlor | | | 0.1 | 0 | 1 | 1.026751E+07 | 5 | 1.065285E+07 | 10 | 1.052E+07 | 20 | 1.071E+07 |
| Heptachlor [2C] | | | 0.1 | 0 | 1 | 1.567141E+07 | 5 | 1.658962E+07 | 10 | 1.664E+07 | 20 | 1.7725E+07 |
| Heptachlor Epoxide | | | 0.1 | 0 | 1 | 9506230 | 5 | 9898672 | 10 | 9581988 | 20 | 9905000 |
| Heptachlor Epoxide [2C] | | | 0.1 | 0 | 1 | 1.446707E+07 | 5 | 1.50937E+07 | 10 | 1.467E+07 | 20 | 1.569E+07 |
| Hexachlorobenzene | | | 0.1 | 0 | 1 | 1.112032E+07 | 5 | 1.120887E+07 | 10 | 1.088E+07 | 20 | 1.098E+07 |
| Hexachlorobenzene [2C] | | | 0.1 | 0 | 1 | 1.413315E+07 | 5 | 1.388842E+07 | 10 | 1.331E+07 | 20 | 1.384E+07 |
| Methoxychlor | | | 0.1 | 0 | 1 | 0 | 5 | 4672884 | 10 | 4196836 | 20 | 4214067 |
| Methoxychlor [2C] | | | 0.1 | 0 | 1 | 0 | 5 | 7743796 | 10 | 7025985 | 20 | 7100000 |
| Toxaphene | | | | | | | | | | | | |
| Toxaphene [2C] | | | | | | | | | | | | |
| Chlordane (1) | 500 | 366400 | | | | | | | | | | |
| Chlordane (1) [2C] | 500 | 502800 | | | | | | | | | | |
| Chlordane (2) | 500 | 638200 | | | | | | | | | | |
| Chlordane (2) [2C] | 500 | 990800 | | | | | | | | | | |
| Chlordane (3) | 500 | 390400 | | | | | | | | | | |
| Chlordane (3) [2C] | 500 | 519600 | | | | | | | | | | |
| Chlordane (4) | 500 | 1416400 | | | | | | | | | | |
| Chlordane (4) [2C] | 500 | 1820000 | | | | | | | | | | |
| Chlordane (5) | 500 | 365800 | | | | | | | | | | |
| Chlordane (5) [2C] | 500 | 1623800 | | | | | | | | | | |
| Decachlorobiphenyl | | | 0.1 | 0 | 1 | 0 | 5 | 9608736 | 10 | 8721587 | 20 | 9210000 |
| Decachlorobiphenyl [2C] | | | 0.1 | 0 | 1 | 0 | 5 | 1.46052E+07 | 10 | 1.346E+07 | 20 | 1.432E+07 |
| Tetrachloro-m-xylene | | | 0.1 | 0 | 1 | 0 | 5 | 1.158797E+07 | 10 | 1.131E+07 | 20 | 1.1525E+07 |
| Tetrachloro-m-xylene [2C] | | | 0.1 | 0 | 1 | 0 | 5 | 1.433764E+07 | 10 | 1.392E+07 | 20 | 1.4635E+07 |

# 6 - FORM VI
# INITIAL CALIBRATION DATA SHEET (Continued)

*SW-846 8081B*

Client: NYDEC Wood - Portland, ME SDG: 22C1692

Project: Irvington Rugs and Cleaners - CO 142890

Calibration: 2200152 Instrument: ECD2

Calibration Date: 3/28/2022 12:00:57AM

| Compound | Level 13 | | Level 14 | | Level 15 | | Level 16 | | Level 17 | | Level 18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RF | | RF | | RF | | RF | | RF | | RF |
| Endrin [2C] | 50 | 1.5436E+07 | 100 | 1.6321E+07 | 200 | 1.5921E+07 | | | | | | |
| Endrin Aldehyde | 50 | 7296000 | 100 | 7658000 | 200 | 7381500 | | | | | | |
| Endrin Aldehyde [2C] | 50 | 1.1584E+07 | 100 | 1.2414E+07 | 200 | 1.21515E+07 | | | | | | |
| Endrin Ketone | 50 | 9222000 | 100 | 9585000 | 200 | 9056500 | | | | | | |
| Endrin Ketone [2C] | 50 | 1.5702E+07 | 100 | 1.6751E+07 | 200 | 1.62095E+07 | | | | | | |
| Heptachlor | 50 | 1.0754E+07 | 100 | 1.0859E+07 | 200 | 1.052E+07 | | | | | | |
| Heptachlor [2C] | 50 | 1.7936E+07 | 100 | 1.841E+07 | 200 | 1.82905E+07 | | | | | | |
| Heptachlor Epoxide | 50 | 9926000 | 100 | 1.0148E+07 | 200 | 9798000 | | | | | | |
| Heptachlor Epoxide [2C] | 50 | 1.5744E+07 | 100 | 1.6348E+07 | 200 | 1.60965E+07 | | | | | | |
| Hexachlorobenzene | 50 | 1.087E+07 | 100 | 1.1139E+07 | 200 | 1.0922E+07 | | | | | | |
| Hexachlorobenzene [2C] | 50 | 1.3886E+07 | 100 | 1.4323E+07 | 200 | 1.43405E+07 | | | | | | |
| Methoxychlor | 50 | 3974000 | 100 | 4084000 | 200 | 3777500 | | | | | | |
| Methoxychlor [2C] | 50 | 6876000 | 100 | 7240000 | 200 | 6889000 | | | | | | |
| Toxaphene | | | | | | | 50 | 7440000 | 100 | 7618000 | 200 | 7806500 |
| Toxaphene [2C] | | | | | | | 50 | 1.1496E+07 | 100 | 1.1568E+07 | 200 | 1.19955E+07 |
| Chlordane (1) | | | | | | | | | | | | |
| Chlordane (1) [2C] | | | | | | | | | | | | |
| Chlordane (2) | | | | | | | | | | | | |
| Chlordane (2) [2C] | | | | | | | | | | | | |
| Chlordane (3) | | | | | | | | | | | | |
| Chlordane (3) [2C] | | | | | | | | | | | | |
| Chlordane (4) | | | | | | | | | | | | |
| Chlordane (4) [2C] | | | | | | | | | | | | |
| Chlordane (5) | | | | | | | | | | | | |
| Chlordane (5) [2C] | | | | | | | | | | | | |
| Decachlorobiphenyl | 50 | 8442000 | 100 | 8931000 | 200 | 8498000 | | | | | | |
| Decachlorobiphenyl [2C] | 50 | 1.32E+07 | 100 | 1.4285E+07 | 200 | 1.37965E+07 | | | | | | |
| Tetrachloro-m-xylene | 50 | 1.1524E+07 | 100 | 1.1932E+07 | 200 | 1.15985E+07 | | | | | | |
| Tetrachloro-m-xylene [2C] | 50 | 1.475E+07 | 100 | 1.5472E+07 | 200 | 1.5308E+07 | | | | | | |

# 6 - FORM VI
# INITIAL CALIBRATION DATA SHEET (Continued)

## SW-846 8081B

| | | | |
|---|---|---|---|
| Laboratory: | Con-Test, a Pace Analytical Laboratory | Work Order: | 22C1692 |
| Client: | NYDEC_Wood - Portland, ME | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Calibration: | 2200152 | Instrument: | ECD2 |
| | | Calibration Date: | 3/28/2022 12:00:57AM |

| COMPOUND | Mean RF | RF RSD | Linear $r^2$ | Quad COD | LIMIT | Q |
|---|---|---|---|---|---|---|
| Endrin [2C] | 1.531017E+07 | 5.2 | | | 20 | |
| Endrin Aldehyde | 7411373 ✓ | 3.2 ✓ | | | 20 | |
| Endrin Aldehyde [2C] | 1.163694E+07 | 4.8 | | | 20 | |
| Endrin Ketone | 9352423 | 3.0 | | | 20 | |
| Endrin Ketone [2C] | 1.585167E+07 | 3.7 | | | 20 | |
| Heptachlor | 1.061191E+07 | 1.8 | | | 20 | |
| Heptachlor [2C] | 1.732322E+07 | 6.0 | | | 20 | |
| Heptachlor Epoxide | 9823413 | 2.2 | | | 20 | |
| Heptachlor Epoxide [2C] | 1.544418E+07 | 4.6 | | | 20 | |
| Hexachlorobenzene | 1.101717E+07 | 1.2 | | | 20 | |
| Hexachlorobenzene [2C] | 1.396015E+07 | 2.5 | | | 20 | |
| Methoxychlor | 4153214 | 7.3 | | | 20 | |
| Methoxychlor [2C] | 7145797 | 4.5 | | | 20 | |
| Toxaphene | 7773717 | 3.1 | | | 20 | |
| Toxaphene [2C] | 1.187534E+07 | 2.9 | | | 20 | |
| Chlordane (1) | 337372.2 | 7.6 | | | 20 | |
| Chlordane (1) [2C] | 470583.3 | 4.8 | | | 20 | |
| Chlordane (2) | 621303.8 | 5.7 | | | 20 | |
| Chlordane (2) [2C] | 953238 | 6.3 | | | 20 | |
| Chlordane (3) | 389628.5 | 7.2 | | | 20 | |
| Chlordane (3) [2C] | 539459.9 | 6.8 | | | 20 | |
| Chlordane (4) | 1325080 | 6.9 | | | 20 | |
| Chlordane (4) [2C] | 1632290 | 9.2 | | | 20 | |
| Chlordane (5) | 333739.6 | 8.0 | | | 20 | |
| Chlordane (5) [2C] | 1476631 | 7.7 | | | 20 | |
| Decachlorobiphenyl | 8901887 | 5.0 | | | 20 | |
| Decachlorobiphenyl [2C] | 1.394445E+07 | 3.9 | | | 20 | |
| Tetrachloro-m-xylene | 1.157958E+07 | 1.7 | | | 20 | |
| Tetrachloro-m-xylene [2C] | 1.473711E+07 | 4.0 | | | 20 | |

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\data\040622\
Data File : B22E096031.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 7 Apr 2022 1:30 pm
Operator : JMB
Sample : B304396-BS1@COP Inst : ECD 2A
Misc : mix[s,t]
ALS Vial : 31 Sample Multiplier: 1

Integration File signal 1: F-PEST.E
Integration File signal 2: B-PEST.E
Quant Time: Apr 08 05:07:25 2022
Quant Method : C:\msdchem\1\methods\Pest Methods\2PEST032822C.M
Quant Title : PEST 03/28/22 CHLOR 01/31/22 TOX 12/27/21 2200152
QLast Update : Mon Mar 28 19:15:56 2022
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | | Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | ug/L | ug/L | |
|---|---|---|---|---|---|---|---|---|---|
| | | System Monitoring Compounds | | | | | | | |
| 1) | S | Tetrachlo... | 4.853 | 4.781 | 1532.3E6 | 1940.1E6 | 132.327 | 131.641 | |
| 24) | S | Decachlor... | 8.502 | 8.602 | 1277.8E6 | 1969.5E6 | 143.537 | 141.239 | |
| | | Target Compounds | | | | | | | |
| 2) | T | Hexachlor... | 5.064 | 5.023 | 1036.4E6 | 1109.1E6 | 94.064 | 79.447 | |
| 3) | T | alpha-BHC | 5.160 | 5.101 | 1105.6E6 | 1511.6E6 | 83.876 | 75.998 | |
| 4) | T | gamma-BHC | 5.339 | 5.293 | 1019.8E6 | 1433.8E6 | 86.308 | 80.533 | |
| 5) | T | Beta-BHC | 5.392 | 5.345 | 461.1E6 | 645.5E6 | 92.689 | 86.633 | |
| 6) | T | Delta-BHC | 5.495 | 5.511 | 1115.2E6 | 1547.3E6 | 92.126 | 85.098 | |
| 7) | T | Heptachlor | 5.619 | 5.539 | 854.2E6 | 1369.1E6 | 80.489 | 79.032 | |
| 8) | T | Aldrin | 5.803 | 5.728 | 930.9E6 | 1351.3E6 | 85.902 | 81.430 | |
| 9) | T | Alachlor | 5.904 | 5.686 | 106.2E6 | 160.4E6 | 90.208 | 83.758 | |
| 10) | T | Heptachlo... | 6.195 | 6.090 | 883.8E6 | 1313.8E6 | 89.967 | 85.067 | |
| 11) | T | Y-Chlordane | 6.279 | 6.215 | 933.2E6 | 1438.2E6 | 95.115 | 91.648 | |
| 12) | T | A-Chlordane | 6.369 | 6.313 | 923.8E6 | 1376.9E6 | 92.903 | 89.464 | |
| 13) | T | 4,4-DDE | 6.433 | 6.444 | 1063.7E6 | 1471.3E6 | 100.648 | 95.760 | |
| 14) | T | Endo-I | 6.457 | 6.345 | 864.3E6 | 1283.6E6 | 91.852 | 87.604 | |
| 15) | T | Dieldrin | 6.625 | 6.534 | 965.1E6 | 1457.4E6 | 91.807 | 92.294 | |
| 16) | T | Endrin | 6.786 | 6.744 | 880.2E6 | 1378.8E6 | 91.850 | 90.057 | |
| 17) | T | 4,4-DDD | 6.853 | 6.855 | 795.3E6 | 1268.7E6 | 101.942 | 98.800 | |
| 18) | T | Endo-II | 6.948 | 6.901 | 798.2E6 | 1218.3E6 | 91.938 | 87.438 | |
| 19) | T | 4,4-DDT | 7.057 | 7.083 | 773.1E6 | 1288.0E6 | 94.965 | 94.071 | 634.5E6 / 7411373 = 85.6 |
| 20) | T | Endrin Al... | 7.258 | 7.153 | 634.5E6 | 955.7E6 | 85.616 ✓ | 82.133 | |
| 21) | T | Methoxychlor | 7.440 | 7.629 | 383.0E6 | 639.7E6 | 92.216 | 89.526 | |
| 22) | T | End Sulf | 7.587 | 7.363 | 769.7E6 | 1191.6E6 | 94.182 | 88.677 | |
| 23) | T | Endrin Ke... | 7.797 | 7.761 | 905.8E6 | 1450.4E6 | 96.855 | 91.492 | |
| 25) | L8 | Chlordane{1} | 0.000 | 0.000 | 0 | 0 | N.D. | N.D. d | |
| 26) | L8 | Chlordane{2} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d | |
| 27) | L8 | Chlordane{3} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d | |
| 28) | L8 | Chlordane{4} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d | |
| 29) | L8 | Chlordane{5} | 0.000 | 0.000 | 0 | 0 | N.D. | N.D. d | |
| | | Sum Chlordane | | | 0 | 0 | N.D. | N.D. | |
| Average | | Chlordane | | | | | 0.000 | 0.000 | |
| 30) | H | Toxaphene | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int

CHECKED BY: APR 08 2022 Todd Glenfriddo

Checked by: John Benne APR 08 2022

# PCBs

**NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD**
**Project:** Irvington Rugs and Cleaners March 2022
**Method:** 8082A
**Laboratory:** Con-test **SDG(s):** 22C1692
**Date:** 4/28/2022
**Reviewer:** Gabrielle Davis

**Review Level** [X] NYSDEC DUSR [ ] USEPA Region II Guideline

1. ☑ **Case Narrative Review and Data Package Completeness** COMMENTS
   Were problems noted? No problems noted
   Are Field Sample IDs and Locations assigned correctly? YES NO (circle one)
   Were all the samples on the COC analyzed for the requested analyses? YES NO (circle one)

2. ☑ **Holding time and Sample Collection** Sample 22C1692-01 should be 360175-DP002011

   Soil: 14 days from collection to extraction; 40 days from extraction to analysis
   Water: 7 days from collection to extraction; 40 days from extraction to analysis
   Hold time met for all samples? YES NO (circle one)

3. ☑ **QC Blanks**

   Are method blanks free of contamination? YES NO (circle one)

   Are Rinse blanks free of contamination? YES NO NA (circle one)

4. ☑ **Second Column Confirmation – Data Package Narrative Review**
   Did the laboratory narrative identify sample results for which the percent difference between columns was ≥ 25 (Region II criteria) for PCBs? YES NO NA (circle one)

   Did the laboratory qualify results based on the percent difference between columns? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed

5. ☑ **Instrument Calibration – Data Package Narrative Review**
   Did the laboratory narrative identify compounds that were not within criteria in the initial and/or continuing calibration standards? YES NO (circle one)

   Aroclors ICAL %RSD criteria = 20
   Aroclors Continuing Calibration %D criteria = 15

   Did the laboratory qualify results based on initial or continuing calibration exceedances? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed

6. ☑ **Surrogate Recovery**

   Were all percent recoveries within limits? (30-150 project limits) YES NO (circle one)

7. ☑ **Matrix Spike**

   Were MS/MSDs submitted/analyzed? YES NO

   Were all percent recoveries and RPDs within limits? (soil and water project limit 29-135, RPD<20) YES NO NA (circle one)

GTD 4/28/2022

8. ☑ **Duplicates**

Were Field Duplicates submitted/analyzed? YES NO

Were all results within Region II limits? (soil RPD<100, water RPD<50) NA - all ND

9. ☑ **Laboratory Control Sample Results**

Were all results within limits? (50-150 project limits) YES NO (circle one)

10. ☑ **Raw Data Review and Calculation Checks**

See attached

11. ☑ **Electronic Data Review and Edits**

Does the EDD match the Form Is? YES NO (circle one)

12. ☑ **Tables Review**

**Table 1** (Samples and Analytical Methods)
**Table 2** (Analytical Results)
**Table 3** (Qualification Actions)
Were all tables produced and reviewed? YES NO (circle one)

GTD 4/28/2022

# 6 - FORM VI
# INITIAL CALIBRATION DATA SHEET (Continued)

*SW-846 8082A*

Client: NYDEC_Wood - Portland, ME SDG: 22C1692

Project: Irvington Rugs and Cleaners - CO 142890

Calibration: 2200121 Instrument: ECD10

Calibration Date: 3/17/2022 3:20:04PM

| Compound | Level 31 | | Level 32 | | Level 33 | | Level 34 | | Level 35 | | Level 36 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RF | | RF | | RF | | RF | | RF | | RF |
| Aroclor-1260 (2) [2C] | | | 10 | 1170725 | 20 | 1119107 | 50 | 990881.6 | 100 | 955933.3 | 200 | 936500 |
| Aroclor-1260 (3) [2C] | | | 10 | 883853.9 | 20 | 827065 | 50 | 736326.8 | 100 | 701542.8 | 200 | 689000 |
| Aroclor-1260 (4) [2C] | | | 10 | 1029180 | 20 | 945747 | 50 | 860501.2 | 100 | 820646.3 | 200 | 804000 |
| Aroclor-1260 (5) [2C] | | | 10 | 1869582 | 20 | 1862513 | 50 | 1732839 | 100 | 1673000 | 200 | 1693000 |
| Aroclor-1262 (1) | | | | | | | | | | | | |
| Aroclor-1262 (2) | | | | | | | | | | | | |
| Aroclor-1262 (3) | | | | | | | | | | | | |
| Aroclor-1262 (4) | | | | | | | | | | | | |
| Aroclor-1262 (5) | | | | | | | | | | | | |
| Aroclor-1262 (1) [2C] | | | | | | | | | | | | |
| Aroclor-1262 (2) [2C] | | | | | | | | | | | | |
| Aroclor-1262 (3) [2C] | | | | | | | | | | | | |
| Aroclor-1262 (4) [2C] | | | | | | | | | | | | |
| Aroclor-1262 (5) [2C] | | | | | | | | | | | | |
| Aroclor-1268 (1) | | | | | | | | | | | | |
| Aroclor-1268 (2) | | | | | | | | | | | | |
| Aroclor-1268 (3) | | | | | | | | | | | | |
| Aroclor-1268 (4) | | | | | | | | | | | | |
| Aroclor-1268 (5) | | | | | | | | | | | | |
| Aroclor-1268 (1) [2C] | | | | | | | | | | | | |
| Aroclor-1268 (2) [2C] | | | | | | | | | | | | |
| Aroclor-1268 (3) [2C] | | | | | | | | | | | | |
| Aroclor-1268 (4) [2C] | | | | | | | | | | | | |
| Aroclor-1268 (5) [2C] | | | | | | | | | | | | |
| Decachlorobiphenyl | 5 | 1.282118E+07 | 10 | 1.268E+07 | 20 | 1.293E+07 | 50 | 1.2446E+07 | 100 | 1.2491E+07 | 200 | 1.30895E+07 |
| Decachlorobiphenyl [2C] | 5 | 1.28405E+07 | 10 | 1.257E+07 | 20 | 1.2705E+07 | 50 | 1.2162E+07 | 100 | 1.2148E+07 | 200 | 1.271E+07 |
| Tetrachloro-m-xylene | 5 | 1.480954E+07 | 10 | 1.518E+07 | 20 | 1.5955E+07 | 50 | 1.495E+07 | 100 | 1.5283E+07 | 200 | 1.6076E+07 |
| Tetrachloro-m-xylene [2C] | 5 | 1.681364E+07 | 10 | 1.743E+07 | 20 | 1.822E+07 | 50 | 1.7604E+07 | 100 | 1.7437E+07 | 200 | 1.78325E+07 |

# 6 - FORM VI
# INITIAL CALIBRATION DATA SHEET (Continued)

*SW-846 8082A*

Client: NYDEC_Wood - Portland, ME SDG: 22C1692

Project: Irvington Rugs and Cleaners - CO 142890

Calibration: 2200121 Instrument: ECD10

Calibration Date: 3/17/2022 3:20:04PM

| Compound | Level 37 | | Level 38 | | Level 39 | | Level 40 | | Level 41 | | Level 42 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RF | | RF | | RF | | RF | | RF | | RF |
| Aroclor-1260 (2) [2C] | 500 | 903000 | | | | | | | | | | |
| Aroclor-1260 (3) [2C] | 500 | 664800 | | | | | | | | | | |
| Aroclor-1260 (4) [2C] | 500 | 782800 | | | | | | | | | | |
| Aroclor-1260 (5) [2C] | 500 | 1702000 | | | | | | | | | | |
| Aroclor-1262 (1) | | | | | | | | | | | | |
| Aroclor-1262 (2) | | | | | | | | | | | | |
| Aroclor-1262 (3) | | | | | | | | | | | | |
| Aroclor-1262 (4) | | | | | | | | | | | | |
| Aroclor-1262 (5) | | | | | | | | | | | | |
| Aroclor-1262 (1) [2C] | | | | | | | | | | | | |
| Aroclor-1262 (2) [2C] | | | | | | | | | | | | |
| Aroclor-1262 (3) [2C] | | | | | | | | | | | | |
| Aroclor-1262 (4) [2C] | | | | | | | | | | | | |
| Aroclor-1262 (5) [2C] | | | | | | | | | | | | |
| Aroclor-1268 (1) | | | | | | | | | | | | |
| Aroclor-1268 (2) | | | | | | | | | | | | |
| Aroclor-1268 (3) | | | | | | | | | | | | |
| Aroclor-1268 (4) | | | | | | | | | | | | |
| Aroclor-1268 (5) | | | | | | | | | | | | |
| Aroclor-1268 (1) [2C] | | | | | | | | | | | | |
| Aroclor-1268 (2) [2C] | | | | | | | | | | | | |
| Aroclor-1268 (3) [2C] | | | | | | | | | | | | |
| Aroclor-1268 (4) [2C] | | | | | | | | | | | | |
| Aroclor-1268 (5) [2C] | | | | | | | | | | | | |
| Decachlorobiphenyl | 500 | 1.37128E+07 | | | | | | | | | | |
| Decachlorobiphenyl [2C] | 500 | 1.31162E+07 | | | | | | | | | | |
| Tetrachloro-m-xylene | 500 | 1.64958E+07 | | | | | | | | | | |
| Tetrachloro-m-xylene [2C] | 500 | 1.79872E+07 | | | | | | | | | | |

# 6 - FORM VI
# INITIAL CALIBRATION DATA SHEET (Continued)

## SW-846 8082A

| | | | |
|---|---|---|---|
| Laboratory: | Con-Test, a Pace Analytical Laboratory | Work Order: | 22C1692 |
| Client: | NYDEC_Wood - Portland, ME | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Calibration: | 2200121 | Instrument: | ECD10 |
| | | Calibration Date: | 3/17/2022 3:20:04PM |

| COMPOUND | Mean RF | RF RSD | Linear $r^2$ | Quad COD | LIMIT | Q |
|---|---|---|---|---|---|---|
| Aroclor-1260 (2) [2C] | 1012691 | 10.6 | | | 20 | |
| Aroclor-1260 (3) [2C] | 750431.4 | 11.5 | | | 20 | |
| Aroclor-1260 (4) [2C] | 873812.4 | 10.9 | | | 20 | |
| Aroclor-1260 (5) [2C] | 1755489 | 5.0 | | | 20 | |
| Aroclor-1262 (1) | 643621.8 | 10.0 | | | 20 | |
| Aroclor-1262 (2) | 877222.2 | 8.9 | | | 20 | |
| Aroclor-1262 (3) | 1056592 | 6.7 | | | 20 | |
| Aroclor-1262 (4) | 955834.9 | 6.0 | | | 20 | |
| Aroclor-1262 (5) | 1910830 | 2.4 | | | 20 | |
| Aroclor-1262 (1) [2C] | 726263.9 | 10.6 | | | 20 | |
| Aroclor-1262 (2) [2C] | 822244.6 | 11.6 | | | 20 | |
| Aroclor-1262 (3) [2C] | 1091432 | 10.7 | | | 20 | |
| Aroclor-1262 (4) [2C] | 1071046 | 12.2 | | | 20 | |
| Aroclor-1262 (5) [2C] | 2014408 | 7.0 | | | 20 | |
| Aroclor-1268 (1) | 2123036 | 3.9 | | | 20 | |
| Aroclor-1268 (2) | 1993068 | 3.2 | | | 20 | |
| Aroclor-1268 (3) | 1678318 | 4.9 | | | 20 | |
| Aroclor-1268 (4) | 719312.6 | 5.2 | | | 20 | |
| Aroclor-1268 (5) | 5284064 | 1.6 | | | 20 | |
| Aroclor-1268 (1) [2C] | 2212031 | 7.1 | | | 20 | |
| Aroclor-1268 (2) [2C] | 2092194 | 6.7 | | | 20 | |
| Aroclor-1268 (3) [2C] | 1739898 | 9.1 | | | 20 | |
| Aroclor-1268 (4) [2C] | 856150.4 | 16.9 | | | 20 | |
| Aroclor-1268 (5) [2C] | 5378130 | 2.4 | | | 20 | |
| Decachlorobiphenyl | 1.28815E+07 | 3.4 | | | 20 | |
| Decachlorobiphenyl [2C] | 1.260739E+07 | 2.8 | | | 20 | |
| Tetrachloro-m-xylene | 1.553562E+07 ✓ | 4.1 ✓ | | | 20 | |
| Tetrachloro-m-xylene [2C] | 1.761776E+07 | 2.6 | | | 20 | |

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\data\040722\
Data File : J22E097012.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 7 Apr 2022 10:54 am
Operator : JMB
Sample : B304395-BS1@TBA Inst : ECD10
Misc : mix[s,l1,l7]
ALS Vial : 12 Sample Multiplier: 1

Integration File signal 1: PCB-F.E
Integration File signal 2: PCB-B.E
Quant Time: Apr 07 16:06:20 2022
Quant Method : C:\msdchem\1\methods\PCB Methods\10-PCB-040622.M
Quant Title : 60/16-031422, 54-031422, 48-031422, 42-031422, 32/68-031422, 21/62-0314221 220012
1
QLast Update : Thu Mar 17 16:57:04 2022
Response via : Initial Calibration
Integrator: ChemStation

CHECKED BY:

APR 08 2022

Todd Glenfriedo

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | ug/L | ug/L |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S Tetrachlo... | 3.127 | 3.071 | 2297.9E6 | 2669.5E6 | 147.912 | 151.532 |
| 2) S Decachlor... | 7.226 | 7.390 | 2172.8E6 | 2275.5E6 | 168.673 | 180.491 |
| Target Compounds | | | | | | |
| 3) L1 1016{1} | 3.885 | 3.977 | 9216749 | 11600887 | 42.027 | 44.861 |
| 4) L1 1016{2} | 4.096 | 4.251 | 27125870 | 24376420 | 39.199 | 45.256 |
| 5) L1 1016{3} | 4.203 | 4.333 | 21263799 | 14579980 | 43.754 | 44.511 |
| 6) L1 1016{4} | 4.255 | 4.407 | 12321388 | 13586474 | 41.257 | 45.364 |
| 7) L1 1016{5} | 4.533 | 4.625 | 16165522 | 19047238 | 41.399 | 43.321 |
| Sum 1016 | | | 86093328 | 83190998 | 207.637 | 223.314 |
| Average 1016 | | | | | 41.527 | 44.663 |
| 8) L7 1260{1} | 5.527 | 5.655 | 31868313 | 37340597 | 40.476 | 42.702 |
| 9) L7 1260{2} | 5.857 | 5.823 | 19652396 | 43888992 | 40.655 | 43.340 |
| 10) L7 1260{3} | 6.060 | 6.165 | 29897971 | 32532067 | 41.378 | 43.350 |
| 11) L7 1260{4} | 6.236 | 6.370 | 30145063 | 37484074 | 39.952 | 42.896 |
| 12) L7 1260{5} | 6.439 | 6.528 | 62850747 | 73024896 | 38.547 | 41.598 |
| Sum 1260 | | | 174.4E6 | 224.3E6 | 201.007 | 213.886 |
| Average 1260 | | | | | 40.201 | 42.777 |
| 13) L6 1254{1} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |
| 14) L6 1254{2} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |
| 15) L6 1254{3} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |
| 16) L6 1254{4} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |
| 17) L6 1254{5} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |
| Sum 1254 | | | 0 | 0 | N.D. | N.D. |
| Average 1254 | | | | | 0.000 | 0.000 |
| 18) L5 1248{1} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |
| 19) L5 1248{2} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |
| 20) L5 1248{3} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |
| 21) L5 1248{4} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |
| 22) L5 1248{5} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |
| Sum 1248 | | | 0 | 0 | N.D. | N.D. |
| Average 1248 | | | | | 0.000 | 0.000 |
| 23) L4 1242{1} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |
| 24) L4 1242{2} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |
| 25) L4 1242{3} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |
| 26) L4 1242{4} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |
| 27) L4 1242{5} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |
| Sum 1242 | | | 0 | 0 | N.D. | N.D. |
| Average 1242 | | | | | 0.000 | 0.000 |
| 28) L3 1232{1} | 0.000 | 0.000 | 0 | 0 | N.D. d | N.D. d |

2297.9E6 / 1.55E7 = 147.912 ✓

# METALS

**NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD**
**Project:** Irvington Rugs and Cleaners March 2022
**Method(s):** 6010D
**Laboratory:** Con-test **SDG(s):** 22C1692
**Date:** 4/28/2022
**Reviewer:** Gabrielle Davis

**Review Level** [X] NYSDEC DUSR [ ] USEPA Region II Guideline

1. ☑ **Case Narrative Review and Data Package Completeness** COMMENTS
   Were problems noted? Yes, see attached
   Were all the samples on the COC analyzed for the requested analyses? YES NO (circle one)

   Are Field Sample IDs and Locations assigned correctly? YES NO (circle one)
2. ☑ **Holding time and Sample Collection** Sample 22C1692-01 should be 360175-DP002011
   Were all samples were all prepped and analyzed with the holding time (6 month). YES NO
3. ☑ **QC Blanks**
   Are method blanks clean? YES NO (circle one)

   Are Initial and continuing calibration blanks clean? YES NO (circle one)
4. ☑ **Instrument Calibration – Data Package Narrative Review**
   Did the laboratory narrative identify any results that were not within criteria in the initial and/or continuing calibration standards? YES NO (circle one)
   See attached for CCV review

   Initial calibration criteria based on method guidance and continuing calibration standards recovery 90-110% (80-120% Hg)

   Did the laboratory qualify results based on initial or continuing calibration exceedances? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed
5. ☑ **Laboratory Control Sample Results**
   Were all results were within 80-120% limits? YES NO (circle one)
6. ☑ **Matrix Spike**
   Were MS/MSDs submitted/analyzed? YES NO

   Were all results were within 75-125% limits? YES NO NA (circle one) See attached - no quals
7. ☑ **Duplicates**
   Were Field Duplicates submitted/analyzed? YES NO

   Aqueous RPD within limit? (20%) YES NO NA (circle one)
   Soil RPD within limit? (35%) YES NO NA (circle one)
   Lab Dup RPD <20% for water, 35% for soil values > 5X the CRQL (or ± CRQL) YES NO NA
8. ☑ Were both **Total and Dissolved** metals reported? YES NO NA (circle one)
   If the dissolved concentration is > 20% of the total concentration then estimate (J) both results using professional judgment
9. ☑ **Percent solids** < 50% for any soil/sediment sample? YES NO NA (circle one)
   If yes, estimate all results using professional judgment

GTD 4/28/2022

10. ☑ **Raw Data Review and Calculation Checks**
    See attached

11. ☑ **Electronic Data Review and Edits**
    Does the EDD match the Form Is? YES NO (circle one)

12. ☑ **DUSR Tables Review**
    **Table 1** (Samples and Analytical Methods)
    **Table 2** (Analytical Results)
    **Table 3** (Qualification Actions)
    Were all tables produced and reviewed? YES NO (circle one)

GTD 4/28/2022

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

**SW-846 6010D**

**Qualifications:**

**MS-19**

Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.

**Analyte & Samples(s) Qualified:**

**Calcium**

22C1692-03[360175-DP005011], B305111-MSD1

**Magnesium**

22C1692-03[360175-DP005011], B305111-MSD1

See attached for MS review

**Sodium**

22C1692-03[360175-DP005011], B305111-MSD1

**V-20**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

**Analyte & Samples(s) Qualified:**

**Beryllium**

22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D]

High bias, samples ND - no quals

**Thallium**

22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-03[360175-DP005011], 22C1692-04[360175-DP005011D]

**SW-846 7470A**

**Qualifications:**

**B**

Analyte is found in the associated laboratory blank as well as in the sample.

**Analyte & Samples(s) Qualified:**

See attached for MB review

**Mercury**

22C1692-01[360175-DP003011], 22C1692-02[360175-DP004011], 22C1692-04[360175-DP005011D], B305219-BLK1

**L-07**

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.

**Analyte & Samples(s) Qualified:**

**Mercury**

B305408-BSD1

**SW-846 8081B**

**Qualifications:**

**V-06**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

**Analyte & Samples(s) Qualified:**

**Hexachlorobenzene**

B304396-BS1, B304396-BSD1, B304396-MS1, B304396-MSD1

**SW-846 8260D**

**Qualifications:**

**MS-07A**

Matrix spike and spike duplicate recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possibility of matrix effects that lead to low bias or non-homogeneous sample aliquot cannot be eliminated.

**Analyte & Samples(s) Qualified:**

**Naphthalene**

22C1692-03[360175-DP005011], B304257-MS1, B304257-MSD1

GTD 4/28/2022

con-test®
A Pace Analytical® Laboratory

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

**QUALITY CONTROL**

**Metals Analyses (Total) - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B305111 - SW-846 3005A** | | | | | | | | | | | | |
| **Matrix Spike Dup (B305111-MSD1)** | | **Source: 22C1692-03** | | | Prepared: 04/06/22 Analyzed: 04/08/22 | | | | | | | |
| Aluminum | 0.450 | 0.050 | 0.015 | mg/L | 0.500 | 0.0154 | 87.0 | | 75-125 | 9.22 | 20 | |
| Antimony | 0.459 | 0.050 | 0.0089 | mg/L | 0.500 | ND | 91.9 | | 75-125 | 8.19 | 20 | |
| Arsenic | 0.440 | 0.010 | 0.0047 | mg/L | 0.500 | ND | 87.9 | | 75-125 | 7.74 | 20 | |
| Barium | 0.518 | 0.050 | 0.0056 | mg/L | 0.500 | 0.0413 | 95.4 | | 75-125 | 6.71 | 20 | |
| Beryllium | 0.556 | 0.0040 | 0.0010 | mg/L | 0.500 | ND | 111 | | 75-125 | 5.15 | 20 | |
| Cadmium | 0.484 | 0.0040 | 0.0008( | mg/L | 0.500 | ND | 96.8 | | 75-125 | 7.92 | 20 | |
| **Calcium** Sample result >4x spike - no quals | 75.0 | 0.50 | 0.11 | mg/L | 4.00 | 73.9 | **27.1** | * | 75-125 | 4.22 | 20 | MS-19 |
| Chromium | 0.485 | 0.010 | 0.0025 | mg/L | 0.500 | ND | 97.0 | | 75-125 | 6.96 | 20 | |
| Cobalt | 0.467 | 0.010 | 0.0014 | mg/L | 0.500 | ND | 93.4 | | 75-125 | 7.71 | 20 | |
| Copper | 0.895 | 0.010 | 0.0036 | mg/L | 1.00 | ND | 89.5 | | 75-125 | 6.85 | 20 | |
| Iron | 3.58 | 0.050 | 0.019 | mg/L | 4.00 | 0.0450 | 88.4 | | 75-125 | 8.26 | 20 | |
| Lead | 0.480 | 0.010 | 0.0030 | mg/L | 0.500 | ND | 96.0 | | 75-125 | 7.24 | 20 | |
| **Magnesium** Sample result >4x spike - no quals | 28.7 | 0.050 | 0.0095 | mg/L | 4.00 | 26.0 | **68.5** | * | 75-125 | 4.19 | 20 | MS-19 |
| Manganese | 0.464 | 0.010 | 0.0017 | mg/L | 0.500 | 0.0190 | 89.0 | | 75-125 | 8.47 | 20 | |
| Nickel | 0.470 | 0.010 | 0.0088 | mg/L | 0.500 | ND | 94.1 | | 75-125 | 7.79 | 20 | |
| Potassium | 8.29 | 2.0 | 0.30 | mg/L | 4.00 | 4.73 | 88.9 | | 75-125 | 5.59 | 20 | |
| Selenium | 0.503 | 0.050 | 0.011 | mg/L | 0.500 | ND | 101 | | 75-125 | 9.25 | 20 | |
| Silver | 0.499 | 0.010 | 0.0032 | mg/L | 0.500 | ND | 99.8 | | 75-125 | 2.60 | 20 | |
| **Sodium** Sample result >4x spike - no quals | 28.8 | 2.0 | 0.53 | mg/L | 4.00 | 26.1 | **67.2** | * | 75-125 | 4.24 | 20 | MS-19 |
| Thallium | 0.528 | 0.050 | 0.019 | mg/L | 0.500 | ND | 106 | | 75-125 | 7.51 | 20 | |
| Vanadium | 0.502 | 0.010 | 0.0031 | mg/L | 0.500 | 0.00673 | 99.1 | | 75-125 | 7.10 | 20 | |
| Zinc | 0.933 | 0.010 | 0.0042 | mg/L | 1.00 | 0.00541 | 92.8 | | 75-125 | 7.42 | 20 | |
| **Batch B305219 - SW-846 7470A/7471A** | | | | | | | | | | | | |
| **Blank (B305219-BLK1)** Associated with samples 1, 2, 4 | | | | | Prepared: 04/07/22 Analyzed: 04/08/22 | | | | | | | |
| Mercury All qual'd U @ RL, BL1 | 0.000093 | 0.00010 | 0.0000- | mg/L | | | | | | | | B, J |
| **LCS (B305219-BS1)** | | | | | Prepared: 04/07/22 Analyzed: 04/08/22 | | | | | | | |
| Mercury | 0.00451 | 0.00010 | 0.0000- | mg/L | 0.00402 | | 112 | | 80-120 | | | |
| **LCS Dup (B305219-BSD1)** | | | | | Prepared: 04/07/22 Analyzed: 04/08/22 | | | | | | | |
| Mercury | 0.00447 | 0.00010 | 0.0000- | mg/L | 0.00402 | | 111 | | 80-120 | 0.810 | 20 | |
| **Batch B305408 - SW-846 7470A Prep** | | | | | | | | | | | | |
| **Blank (B305408-BLK1)** | | | | | Prepared & Analyzed: 04/10/22 | | | | | | | |
| Mercury | ND | 0.00010 | 0.0000- | mg/L | | | | | | | | |
| **LCS (B305408-BS1)** | | | | | Prepared & Analyzed: 04/10/22 | | | | | | | |
| Mercury | 0.00326 | 0.00010 | 0.0000- | mg/L | 0.00402 | | 81.0 | | 80-120 | | | |

GTD 4/28/2022

All within limits - no quals

Sample ID: 360175-DP005011 / 360175-DP005011D

| Compound | Result | LabQual | DF | Dup | LabQual | DF | RPD |
|---|---|---|---|---|---|---|---|
| Calcium | 74 | | | 74 | | | 0.0 |
| Magnesium | 26 | | | 26 | | | 0.0 |
| Manganese | 0.019 | | | 0.019 | | | 0.0 |
| Potassium | 4.7 | | | 4.8 | | | 2.1 |
| Sodium | 26 | | | 26 | | | 0.0 |

GTD 4/28/2022

**Batch ID: AVIO 500**
**Sequence No.: 45** **Autosampler Location: 50**
**Sample ID: 22C1692-03** **Date Collected: 4/8/2022 3:51:15 PM**
**Analyst:** **Data Type: Original**
**Initial Sample Wt:** **Initial Sample Vol:**
**Dilution:** **Sample Prep Vol:**
**Wash Time (before sample): 100**

**Mean Data: 22C1692-03**

| Analyte | Mean Corrected Intensity | Conc. | Calib. Units | Std.Dev. | Conc. | Sample Units | Std.Dev. | RSD |
|---|---|---|---|---|---|---|---|---|
| Y radial | 588693.2 | 95.7 | % | 0.71 | 95.7 | % | 0.71 | 0.75% |
| Y axial | 2690113.2 | 92.4 | % | 0.23 | 92.4 | % | 0.23 | 0.25% |
| Ag 328.068† | -16.5 | 0.0011 | mg/L | 0.00111 | 0.0011 | mg/L | 0.00111 | 96.72% |
| Al 396.153† | 189.9 | 0.0191 | mg/L | 0.00164 | 0.0191 | mg/L | 0.00164 | 8.62% |
| As 188.979† | -3.8 | -0.0025 | mg/L | 0.00320 | -0.0025 | mg/L | 0.00320 | 127.05% |
| B 208.889† | 187.5 | 0.0260 | mg/L | 0.00075 | 0.0260 | mg/L | 0.00075 | 2.88% |
| Ba 233.527† | 3496.5 | 0.0412 | mg/L | 0.00028 | 0.0412 | mg/L | 0.00028 | 0.69% |
| Be 313.107† | -163.4 | -0.0003 | mg/L | 0.00003 | -0.0003 | mg/L | 0.00003 | 11.44% |
| Ca 317.933† | 2189685.6 | 74.79 | mg/L | 0.101 | 74.79 | mg/L | 0.101 | 0.13% |
| Cd 228.802† | 21.0 | 0.0010 | mg/L | 0.00036 | 0.0010 | mg/L | 0.00036 | 35.87% |
| Co 228.616† | 8.5 | 0.0004 | mg/L | 0.00011 | 0.0004 | mg/L | 0.00011 | 25.47% |
| Cr 267.716† | 112.1 | 0.0017 | mg/L | 0.00014 | 0.0017 | mg/L | 0.00014 | 8.39% |
| Cu 327.393† | -99.7 | -0.0002 | mg/L | 0.00082 | -0.0002 | mg/L | 0.00082 | 492.22% |
| Fe 238.204† | 407.8 | 0.0297 | mg/L | 0.00020 | 0.0297 | mg/L | 0.00020 | 0.66% |
| K 766.490† | 19910.0 | 4.662 | mg/L | 0.0197 | 4.662 | mg/L | 0.0197 | 0.42% |
| Mg 285.213† | 966878.1 | 26.05 | mg/L | 0.035 | 26.05 | mg/L | 0.035 | 0.14% |
| Mn 257.610† | 1384.8 | 0.0191 | mg/L | 0.00026 | 0.0191 | mg/L | 0.00026 | 1.35% |
| Mo 202.031† | -11.5 | -0.0007 | mg/L | 0.00036 | -0.0007 | mg/L | 0.00036 | 50.50% |
| Na 589.592† | 349912.4 | 26.23 | mg/L | 0.056 | 26.23 | mg/L | 0.056 | 0.21% |
| Ni 231.604† | -35.5 | -0.0011 | mg/L | 0.00053 | -0.0011 | mg/L | 0.00053 | 50.04% |
| Pb 220.353† | -2.9 | -0.0005 | mg/L | 0.00066 | -0.0005 | mg/L | 0.00066 | 137.43% |
| Sb 206.836† | -4.0 | -0.0015 | mg/L | 0.00286 | -0.0015 | mg/L | 0.00286 | 191.29% |
| Se 196.026† | 3.5 | 0.0017 | mg/L | 0.00167 | 0.0017 | mg/L | 0.00167 | 96.11% |
| Sn 189.927† | -52.6 | -0.0096 | mg/L | 0.00134 | -0.0096 | mg/L | 0.00134 | 14.01% |
| Ti 337.279† | 38.2 | 0.0004 | mg/L | 0.00005 | 0.0004 | mg/L | 0.00005 | 10.48% |
| Tl 351.924† | -22.1 | -0.0098 | mg/L | 0.00289 | -0.0098 | mg/L | 0.00289 | 29.59% |
| V 290.880† | 1162.7 | 0.0158 | mg/L | 0.00066 | 0.0158 | mg/L | 0.00066 | 4.20% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 | 4.290 | 4.290 | 0.0510 | 0.2443 | 0.0511 | 11:29:09 AM | Yes |
| Mean: | 4.396 | 4.396 | 0.0522 | | | | |
| SD: | 0.1509 | 0.1509 | 0.0018 | | | | |
| %RSD: | 3.43% | 3.43% | 3.42% | | | | |

**Sequence No.: 17** **Autosampler Location: 56**
**Sample ID: B305219-DUP1** **Date Collected: 4/8/2022 11:29:33 AM**
**Analyst: MJH** **Data Type: Original**
**Initial Sample Wt:** **Initial Sample Vol:**
**Analyst Dilution Factor:** **Sample Prep Vol:**
**Wash Time (before sample): 0** **System Dilution Factor: 1**
**Instrument: FIMS100**

**Replicate Data: B305219-DUP1** **Analyte: Hg 253.7**

| Repl # | SampleConc µg/L | StndConc µg/L | BlnkCorr Signal | Peak Area | Peak Height | Time | Peak Stored |
|---|---|---|---|---|---|---|---|
| 1 | 0.139 | 0.139 | 0.0019 | 0.0102 | 0.0020 | 11:30:25 AM | Yes |
| 2 | 0.099 | 0.099 | 0.0014 | 0.0076 | 0.0016 | 11:30:56 AM | Yes |
| Mean: | 0.119 | 0.119 | 0.0016 | | | | |
| SD: | 0.0284 | 0.0284 | 0.0003 | | | | |
| %RSD: | 23.85% | 23.85% | 20.57% | | | | |

**Sequence No.: 18** **Autosampler Location: 57**
**Sample ID: 22C1692-03** **Date Collected: 4/8/2022 11:31:19 AM**
**Analyst: MJH** **Data Type: Original**
**Initial Sample Wt:** **Initial Sample Vol:**
**Analyst Dilution Factor:** **Sample Prep Vol:**
**Wash Time (before sample): 0** **System Dilution Factor: 1**
**Instrument: FIMS100**

**Replicate Data: 22C1692-03** **Analyte: Hg 253.7**

| Repl # | SampleConc µg/L | StndConc µg/L | BlnkCorr Signal | Peak Area | Peak Height | Time | Peak Stored |
|---|---|---|---|---|---|---|---|
| 1 | 0.083 | 0.083 | 0.0012 | 0.0063 | 0.0014 | 11:32:11 AM | Yes |
| 2 | 0.072 | 0.072 | 0.0011 | 0.0056 | 0.0013 | 11:32:42 AM | Yes |
| Mean: | 0.078 | 0.078 | 0.0011 | | | | |
| SD: | 0.0080 | 0.0080 | 0.0001 | | | | |
| %RSD: | 10.27% | 10.27% | 8.25% | | | | |

**Sequence No.: 19** **Autosampler Location: 58**
**Sample ID: 22C1692-01** **Date Collected: 4/8/2022 11:33:06 AM**
**Analyst: MJH** **Data Type: Original**
**Initial Sample Wt:** **Initial Sample Vol:**
**Analyst Dilution Factor:** **Sample Prep Vol:**
**Wash Time (before sample): 0** **System Dilution Factor: 1**
**Instrument: FIMS100**

**Replicate Data: 22C1692-01** **Analyte: Hg 253.7**

| Repl # | SampleConc µg/L | StndConc µg/L | BlnkCorr Signal | Peak Area | Peak Height | Time | Peak Stored |
|---|---|---|---|---|---|---|---|
| 1 | 0.078 | 0.078 | 0.0011 | 0.0061 | 0.0013 | 11:33:58 AM | Yes |
| 2 | 0.067 | 0.067 | 0.0010 | 0.0054 | 0.0012 | 11:34:29 AM | Yes |
| Mean: | 0.073 | 0.073 | 0.0011 | | | | |
| SD: | 0.0077 | 0.0077 | 0.0001 | | | | |
| %RSD: | 10.51% | 10.51% | 8.34% | | | | |

0.000073 mg/L ✓

**Sequence No.: 20** **Autosampler Location: 59**
**Sample ID: 22C1692-02** **Date Collected: 4/8/2022 11:34:53 AM**
**Analyst: MJH** **Data Type: Original**
**Initial Sample Wt:** **Initial Sample Vol:**
**Analyst Dilution Factor:** **Sample Prep Vol:**
**Wash Time (before sample): 0** **System Dilution Factor: 1**
**Instrument: FIMS100**

# PFAS

**NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD**
**Project:** Irvington Rugs and Cleaners March 2022
**Method:** SOP-454 PFAS
**Laboratory:** Con-test **SDG(s):** 22C1815
**Date:** 4/28/2022
**Reviewer:** Gabrielle Davis

**Review Level** [X] NYSDEC DUSR [ ] USEPA Region II Guideline

1. ☑ **Case Narrative Review and Data Package Completeness** COMMENTS
   Were problems noted? Yes, see attached
   Were all the samples on the COC analyzed for the requested analyses? YES NO (circle one)
   Are Field Sample IDs and Locations assigned correctly? YES NO (circle one)
2. ☑ **Holding time and Sample Collection** Sample 22C1815-03 should be 360175-DP01009
   Water: 14 days from collection to extraction; 28 days from extraction to analysis
   Hold time met for all samples? YES NO (circle one)
3. ☑ **QC Blanks**
   Are method blanks free of contamination? YES NO (circle one)
   Are rinse blanks free of contamination? YES NO NA (circle one)
   Are field reagent blanks free of contamination? YES NO NA (circle one)
4. ☑ **Instrument Tuning – Data Package Narrative Review**
   Did the laboratory narrative identify any results that were not within method criteria? YES NO (circle one)
   If yes, use professional judgment to evaluate data and qualify results if needed
5. ☑ **Internal Standards – Data Package Narrative Review**
   (Area Limits = -50% to +100%, RTs within 30 seconds of daily CCAL standard (or ICAL mid-point if samples follow ICAL))
   Did the laboratory narrative identify any sample internal standards that were not within criteria? YES NO (circle one)

   Did the laboratory qualify results based on internal standard exceedances? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed
6. ☑ **Instrument Calibration – Data Package Narrative Review**
   Did the laboratory narrative identify compounds that were not within criteria in the initial and/or continuing calibration standards? YES NO (circle one)
   Not associated with samples
   Initial Calibration %RSD = 15%, Continuing Calibration %D = 20%

   Did the laboratory qualify results based on initial or continuing calibration exceedances? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed
7. ☑ **Surrogate Recovery** (Extracted Isotope Dilution Standards) (50-150)
   Were all results within limits? YES NO (circle one)
   Were any recoveries < 10%? (use professional judgment) Subsets J/UJ, ISL
8. ☑ **Matrix Spike** (70-130)
   Were MS/MSDs submitted/analyzed? YES NO

   Were all results within limits? YES NO NA (circle one)

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9. ☑ **Duplicates** (RPD limits = water 30)
Were Field Duplicates submitted/analyzed? YES NO

Were RPDs within criteria? YES NO NA (circle one)

10. ☑ **Laboratory Control Sample Results** (70-130)
Were all results within limits? YES NO (circle one)

11. ☑ **Raw Data Review and Calculation Checks**
See attached

12. ☑ **Electronic Data Review and Edits**
Does the EDD match the Form Is? YES NO (circle one)

13. ☑ **Tables**
**Table 1** (Samples and Analytical Methods)
**Table 2** (Analytical Results)
**Table 3** (Qualification Actions)
Were all tables produced and reviewed? YES NO (circle one)

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**CASE NARRATIVE SUMMARY**

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

**SOP-454 PFAS**

**Qualifications:**

**S-29**

Extracted Internal Standard is outside of control limits.

**Analyte & Samples(s) Qualified:**

**d3-NMeFOSAA**
22C1815-02[360175-DP008011], 22C1815-06[360175-DP01508]

**d5-NEtFOSAA**
22C1815-02[360175-DP008011], 22C1815-06[360175-DP01508]

**M2-4:2FTS**
22C1815-02[360175-DP008011], 22C1815-03[DP01009], 22C1815-06[360175-DP01508], S070144-CCV3

**M2-6:2FTS**
22C1815-02[360175-DP008011], 22C1815-03[DP01009], S070144-CCV3

See attached for EIS review

**M2-8:2FTS**
22C1815-02[360175-DP008011], 22C1815-03[DP01009], S070144-CCV3

**M2PFTA**
22C1815-02[360175-DP008011], 22C1815-03[DP01009], 22C1815-05[360175-DP00909], 22C1815-06[360175-DP01508]

**M8FOSA**
22C1815-05[360175-DP00909], 22C1815-06[360175-DP01508]

**MPFBA**
22C1815-05[360175-DP00909], 22C1815-06[360175-DP01508]

**MPFDoA**
22C1815-02[360175-DP008011], 22C1815-06[360175-DP01508]

**V-05**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

**Analyte & Samples(s) Qualified:**

**9Cl-PF3ONS (F53B Major)**
S070144-CCV1

Not associated with samples

**N-EtFOSAA**
S070144-CCV2

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



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Tod E. Kopyscinski
Laboratory Director

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**INTERNAL STANDARD AREA AND RT SUMMARY**

**SOP-454 PFAS**

| Internal Standard | Response | RT | Reference Response | Reference RT | Area % | Area % Limits | RT Diff | RT Diff Limit | Q |
|---|---|---|---|---|---|---|---|---|---|
| **360175-DP008011 (22C1815-02 )** | | | Lab File ID: 22C1815-02.d | | | Analyzed: 04/08/22 00:27 | | | |
| M8FOSA | 160938.2 | 4.00455 | 301,634.00 | 4.00455 | 53 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-4:2FTS UJ, ISL | 41046.71 | 2.4886 | 133,005.00 | 2.4886 | 31 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M2PFTA UJ, ISL | 352873.5 | 4.329683 | 1,059,876.00 | 4.329683 | 33 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M2-8:2FTS UJ, ISL | 56686.02 | 3.810767 | 149,824.00 | 3.810767 | 38 | 50 - 150 | 0.0000 | +/-0.50 | * |
| MPFBA | 453768.4 | 1.0834 | 677,067.00 | 1.0834 | 67 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3HFPO-DA | 158825.7 | 2.831117 | 193,330.00 | 2.831117 | 82 | 50 - 150 | 0.0000 | +/-0.50 | |
| M6PFDA | 393080 | 3.811283 | 651,522.00 | 3.811283 | 60 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3PFBS | 92354.28 | 1.894967 | 142,480.00 | 1.894967 | 65 | 50 - 150 | 0.0000 | +/-0.50 | |
| M7PFUnA | 394008.3 | 3.954033 | 788,425.00 | 3.954033 | 50 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-6:2FTS J, ISL | 23173.56 | 3.453267 | 65,591.00 | 3.453267 | 35 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M5PFPeA | 427759.6 | 1.7231 | 587,852.00 | 1.7231 | 73 | 50 - 150 | 0.0000 | +/-0.50 | |
| M5PFHxA | 520816.8 | 2.572333 | 803,824.00 | 2.572333 | 65 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3PFHxS | 48475.55 | 3.218333 | 92,798.00 | 3.218333 | 52 | 50 - 150 | 0.0000 | +/-0.50 | |
| M4PFHpA | 455348.5 | 3.178867 | 742,996.00 | 3.178867 | 61 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOA | 353556.9 | 3.461933 | 679,171.00 | 3.461933 | 52 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOS | 63667.21 | 3.65215 | 116,549.00 | 3.65215 | 55 | 50 - 150 | 0.0000 | +/-0.50 | |
| M9PFNA | 327373.5 | 3.653183 | 546,124.00 | 3.653183 | 60 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFDoA UJ, ISL | 276289.9 | 4.08865 | 804,522.00 | 4.08865 | 34 | 50 - 150 | 0.0000 | +/-0.50 | * |
| d5-NEtFOSAA UJ, ISL | 82028.58 | 3.9615 | 185,914.00 | 3.9615 | 44 | 50 - 150 | 0.0000 | +/-0.50 | * |
| d3-NMeFOSAA UJ, ISL | 112427.4 | 3.88175 | 244,864.00 | 3.88175 | 46 | 50 - 150 | 0.0000 | +/-0.50 | * |

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**INTERNAL STANDARD AREA AND RT SUMMARY**

**SOP-454 PFAS**

| Internal Standard | Response | RT | Reference Response | Reference RT | Area % | Area % Limits | RT Diff | RT Diff Limit | Q |
|---|---|---|---|---|---|---|---|---|---|
| **DP01009 (22C1815-03 )** | | | Lab File ID: 22C1815-03.d | | | Analyzed: 04/08/22 00:35 | | | |
| M8FOSA | 170478.2 | 4.00455 | 301,634.00 | 4.00455 | 57 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-4:2FTS UJ, ISL | 42512.48 | 2.4886 | 133,005.00 | 2.4886 | 32 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M2PFTA UJ, ISL | 464392.7 | 4.329683 | 1,059,876.00 | 4.329683 | 44 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M2-8:2FTS UJ, ISL | 67405.44 | 3.810767 | 149,824.00 | 3.810767 | 45 | 50 - 150 | 0.0000 | +/-0.50 | * |
| MPFBA | 400704.4 | 1.0834 | 677,067.00 | 1.0834 | 59 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3HFPO-DA | 178505.5 | 2.831117 | 193,330.00 | 2.831117 | 92 | 50 - 150 | 0.0000 | +/-0.50 | |
| M6PFDA | 406246.2 | 3.811283 | 651,522.00 | 3.811283 | 62 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3PFBS | 93323.39 | 1.894967 | 142,480.00 | 1.894967 | 65 | 50 - 150 | 0.0000 | +/-0.50 | |
| M7PFUnA | 453460.2 | 3.954033 | 788,425.00 | 3.954033 | 58 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-6:2FTS UJ, ISL | 23732.84 | 3.453267 | 65,591.00 | 3.453267 | 36 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M5PFPeA | 436678.6 | 1.7231 | 587,852.00 | 1.7231 | 74 | 50 - 150 | 0.0000 | +/-0.50 | |
| M5PFHxA | 530161.3 | 2.572333 | 803,824.00 | 2.572333 | 66 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3PFHxS | 53812.65 | 3.218333 | 92,798.00 | 3.218333 | 58 | 50 - 150 | 0.0000 | +/-0.50 | |
| M4PFHpA | 462978.6 | 3.178867 | 742,996.00 | 3.178867 | 62 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOA | 374696.8 | 3.461933 | 679,171.00 | 3.461933 | 55 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOS | 70525.23 | 3.65215 | 116,549.00 | 3.65215 | 61 | 50 - 150 | 0.0000 | +/-0.50 | |
| M9PFNA | 343350.5 | 3.653183 | 546,124.00 | 3.653183 | 63 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFDoA | 404761.4 | 4.08865 | 804,522.00 | 4.08865 | 50 | 50 - 150 | 0.0000 | +/-0.50 | |
| d5-NEtFOSAA | 107181.8 | 3.9615 | 185,914.00 | 3.9615 | 58 | 50 - 150 | 0.0000 | +/-0.50 | |
| d3-NMeFOSAA | 135015.7 | 3.88175 | 244,864.00 | 3.88175 | 55 | 50 - 150 | 0.0000 | +/-0.50 | |

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**INTERNAL STANDARD AREA AND RT SUMMARY**

**SOP-454 PFAS**

| Internal Standard | Response | RT | Reference Response | Reference RT | Area % | Area % Limits | RT Diff | RT Diff Limit | Q |
|---|---|---|---|---|---|---|---|---|---|
| **360175-DP00909 (22C1815-05 )** | | | Lab File ID: 22C1815-05.d | | | Analyzed: 04/08/22 00:42 | | | |
| M8FOSA UJ, ISL | 130178.3 | 3.996567 | 301,634.00 | 4.00455 | 43 | 50 - 150 | -0.0080 | +/-0.50 | * |
| M2-4:2FTS | 84846.84 | 2.463967 | 133,005.00 | 2.4886 | 64 | 50 - 150 | -0.0246 | +/-0.50 | |
| M2PFTA UJ, ISL | 284474.8 | 4.329683 | 1,059,876.00 | 4.329683 | 27 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M2-8:2FTS | 103114.8 | 3.8028 | 149,824.00 | 3.810767 | 69 | 50 - 150 | -0.0080 | +/-0.50 | |
| MPFBA J, ISL | 102844.8 | 1.008617 | 677,067.00 | 1.0834 | 15 | 50 - 150 | -0.0748 | +/-0.50 | * |
| M3HFPO-DA | 118783.6 | 2.806567 | 193,330.00 | 2.831117 | 61 | 50 - 150 | -0.0246 | +/-0.50 | |
| M6PFDA | 377691.2 | 3.803317 | 651,522.00 | 3.811283 | 58 | 50 - 150 | -0.0080 | +/-0.50 | |
| M3PFBS | 85225.97 | 1.878383 | 142,480.00 | 1.894967 | 60 | 50 - 150 | -0.0166 | +/-0.50 | |
| M7PFUnA | 476147.7 | 3.954033 | 788,425.00 | 3.954033 | 60 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-6:2FTS | 45886.53 | 3.445283 | 65,591.00 | 3.453267 | 70 | 50 - 150 | -0.0080 | +/-0.50 | |
| M5PFPeA | 367359 | 1.706567 | 587,852.00 | 1.7231 | 62 | 50 - 150 | -0.0165 | +/-0.50 | |
| M5PFHxA | 498765.1 | 2.5477 | 803,824.00 | 2.572333 | 62 | 50 - 150 | -0.0246 | +/-0.50 | |
| M3PFHxS | 49390.58 | 3.21025 | 92,798.00 | 3.218333 | 53 | 50 - 150 | -0.0081 | +/-0.50 | |
| M4PFHpA | 428929.9 | 3.170783 | 742,996.00 | 3.178867 | 58 | 50 - 150 | -0.0081 | +/-0.50 | |
| M8PFOA | 339644.7 | 3.461933 | 679,171.00 | 3.461933 | 50 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOS | 65123.6 | 3.65215 | 116,549.00 | 3.65215 | 56 | 50 - 150 | 0.0000 | +/-0.50 | |
| M9PFNA | 305083.8 | 3.6532 | 546,124.00 | 3.653183 | 56 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFDoA | 450379.2 | 4.08865 | 804,522.00 | 4.08865 | 56 | 50 - 150 | 0.0000 | +/-0.50 | |
| d5-NEtFOSAA | 116916.9 | 3.9535 | 185,914.00 | 3.9615 | 63 | 50 - 150 | -0.0080 | +/-0.50 | |
| d3-NMeFOSAA | 133829.7 | 3.88175 | 244,864.00 | 3.88175 | 55 | 50 - 150 | 0.0000 | +/-0.50 | |

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**INTERNAL STANDARD AREA AND RT SUMMARY**

**SOP-454 PFAS**

| Internal Standard | Response | RT | Reference Response | Reference RT | Area % | Area % Limits | RT Diff | RT Diff Limit | Q |
|---|---|---|---|---|---|---|---|---|---|
| **360175-DP01508 (22C1815-06 )** | | | Lab File ID: 22C1815-06.d | | | Analyzed: 04/08/22 00:49 | | | |
| M8FOSA UJ, ISL | 104622.3 | 3.996567 | 301,634.00 | 4.00455 | 35 | 50 - 150 | -0.0080 | +/-0.50 | * |
| M2-4:2FTS UJ, ISL | 61379.07 | 2.472183 | 133,005.00 | 2.4886 | 46 | 50 - 150 | -0.0164 | +/-0.50 | * |
| M2PFTA R, ISL | 171222.8 | 4.329683 | 1,059,876.00 | 4.329683 | 16 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M2-8:2FTS | 93593.93 | 3.8028 | 149,824.00 | 3.810767 | 62 | 50 - 150 | -0.0080 | +/-0.50 | |
| MPFBA J, ISL | 253952.5 | 1.058467 | 677,067.00 | 1.0834 | 38 | 50 - 150 | -0.0249 | +/-0.50 | * |
| M3HFPO-DA | 157911.6 | 2.81475 | 193,330.00 | 2.831117 | 82 | 50 - 150 | -0.0164 | +/-0.50 | |
| M6PFDA | 407098.8 | 3.803317 | 651,522.00 | 3.811283 | 62 | 50 - 150 | -0.0080 | +/-0.50 | |
| M3PFBS | 89022.23 | 1.878383 | 142,480.00 | 1.894967 | 62 | 50 - 150 | -0.0166 | +/-0.50 | |
| M7PFUnA | 442506.7 | 3.954033 | 788,425.00 | 3.954033 | 56 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-6:2FTS | 38122.99 | 3.445283 | 65,591.00 | 3.453267 | 58 | 50 - 150 | -0.0080 | +/-0.50 | |
| M5PFPeA | 371496.8 | 1.714833 | 587,852.00 | 1.7231 | 63 | 50 - 150 | -0.0083 | +/-0.50 | |
| M5PFHxA | 464128.5 | 2.555917 | 803,824.00 | 2.572333 | 58 | 50 - 150 | -0.0164 | +/-0.50 | |
| M3PFHxS | 52067.3 | 3.21025 | 92,798.00 | 3.218333 | 56 | 50 - 150 | -0.0081 | +/-0.50 | |
| M4PFHpA | 417765.3 | 3.170783 | 742,996.00 | 3.178867 | 56 | 50 - 150 | -0.0081 | +/-0.50 | |
| M8PFOA | 346307.8 | 3.461933 | 679,171.00 | 3.461933 | 51 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOS | 67824.61 | 3.65215 | 116,549.00 | 3.65215 | 58 | 50 - 150 | 0.0000 | +/-0.50 | |
| M9PFNA | 320775.9 | 3.6532 | 546,124.00 | 3.653183 | 59 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFDoA UJ, ISL | 306235.4 | 4.08865 | 804,522.00 | 4.08865 | 38 | 50 - 150 | 0.0000 | +/-0.50 | * |
| d5-NEtFOSAA UJ, ISL | 68143.48 | 3.9535 | 185,914.00 | 3.9615 | 37 | 50 - 150 | -0.0080 | +/-0.50 | * |
| d3-NMeFOSAA UJ, ISL | 88145.88 | 3.88175 | 244,864.00 | 3.88175 | 36 | 50 - 150 | 0.0000 | +/-0.50 | * |

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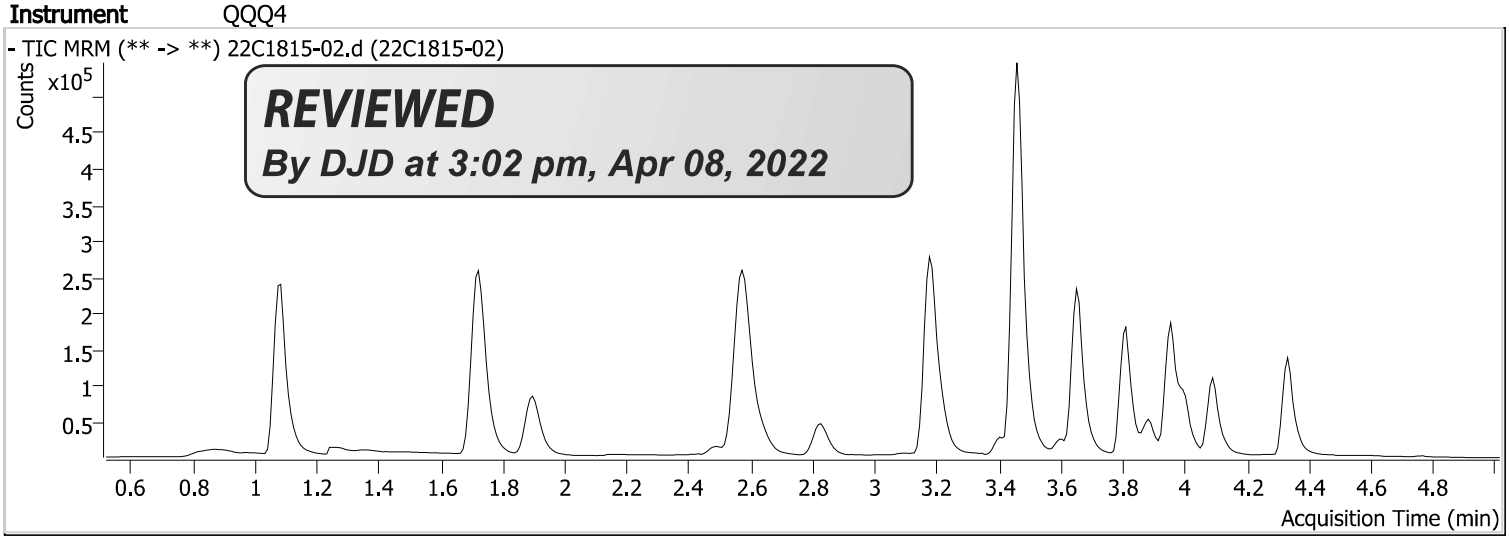
# 6 - FORM VI
# INITIAL CALIBRATION DATA SHEET (Continued)

## SOP-454 PFAS

| | | | |
|---|---|---|---|
| Laboratory: | Con-Test, a Pace Analytical Laboratory | Work Order: | 22C1815 |
| Client: | NYDEC_Wood - Portland, ME | Project: | Irvington- CO 142890 |
| Calibration: | 2200163 | Instrument: | QQQ4 |
| | | Calibration Date: | 4/1/2022 12:00:21AM |

| COMPOUND | Mean RF | RF RSD | Linear $r^2$ | Quad COD | LIMIT | Q |
|---|---|---|---|---|---|---|
| Perfluorobutanoic acid (PFBA) | 0.894004 | 7.1 | | 1.000 | | |
| Perfluorobutanesulfonic acid (PFBS) | 1.022244 | 5.3 | | 1.000 | | |
| Perfluoropentanoic acid (PFPeA) | 0.9886799 | 6.7 | | 1.000 | | |
| Perfluorohexanoic acid (PFHxA) | 0.886256 | 6.7 | | 1.000 | | |
| 11Cl-PF3OUdS (F53B Minor) | 1.373873 | 11.9 | | 0.998 | | |
| 9Cl-PF3ONS (F53B Major) | 3.951362 | 14.5 | 0.995 | | 0.99 | |
| 4,8-dioxa-3H-perfluorononanoic acid (ADON/ | 1.585567 | 10.3 | | 1.000 | | |
| Hexafluoropropylene oxide dimer acid (HFPC | 0.1257651 | 16.4 | | 0.998 | | |
| 8:2 Fluorotelomersulfonic acid (8:2FTS A) | 0.8432716 | 13.7 | | 0.996 | | |
| Perfluorodecanoic acid (PFDA) | 0.9251209 | 10.7 | | 0.999 | | |
| Perfluorododecanoic acid (PFDoA) | 0.9776517 | 11.9 | | 1.000 | | |
| Perfluoro(2-ethoxyethane)sulfonic acid (PFEI | 7.491241 | 6.4 | | 1.000 | | |
| Perfluoroheptanesulfonic acid (PFHpS) | 0.6439033 | 9.3 | | 0.996 | | |
| N-EtFOSAA | 0.8977993 | 9.5 | 0.999 | | 0.99 | |
| N-MeFOSAA | 0.9388427 | 10.4 | 0.999 | | 0.99 | |
| Perfluorotetradecanoic acid (PFTA) | 0.9543091 | 10.7 | 0.996 | | 0.99 | |
| Perfluorotridecanoic acid (PFTrDA) | 1.053801 | 9.0 | | 0.999 | | |
| 4:2 Fluorotelomersulfonic acid (4:2FTS A) | 1.246034 | 8.9 | | 1.000 | | |
| Perfluorodecanesulfonic acid (PFDS) | 0.561114 | 5.1 | 0.998 | | 0.99 | |
| Perfluorooctanesulfonamide (FOSA) | 0.956773 | 8.2 | | 0.999 | | |
| Perfluorononanesulfonic acid (PFNS) | 0.3182159 | 11.6 | | 0.997 | | |
| Perfluoro-1-hexanesulfonamide (FHxSA) | 0.3516814 | 14.2 | | 0.999 | | |
| Perfluoro-1-butanesulfonamide (FBSA) | 0.3256066 | 5.7 | 0.999 | | 0.99 | |
| Perfluorohexanesulfonic acid (PFHxS) | 0.9827122 | 8.0 | | 1.000 | | |
| Perfluoro-4-oxapentanoic acid (PFMPA) | 0.5587749 | 5.3 | | 1.000 | | |
| Perfluoro-5-oxahexanoic acid (PFMBA) | 0.6607067 | 5.4 | | 1.000 | | |
| 6:2 Fluorotelomersulfonic acid (6:2FTS A) | 1.457755 | 16.8 | | 0.997 | | |
| Perfluoropetanesulfonic acid (PFPeS) | 1.036809 | 7.6 | | 1.000 | | |
| Perfluoroundecanoic acid (PFUnA) | 0.88456 | 16.8 | | 1.000 | | |
| Nonafluoro-3,6-dioxaheptanoic acid (NFDHA | 0.4114875 | 5.3 | | 1.000 | | |
| Perfluoroheptanoic acid (PFHpA) | 1.080451 | 10.0 | | 1.000 | | |

| | | | |
|---|---|---|---|
| **Batch Path** | D:\MassHunter\Data\APRIL2022\040722\QuantResults\B304952.batch.bin | | |
| **Analysis Time** | 4/8/2022 2:01 PM | **Last Calib Update** | 4/4/2022 3:09 PM |
| **Acq. Time** | 4/8/2022 12:27 AM | **Data File** | 22C1815-02.d |
| **Sample Type** | Sample | **Sample Name** | 22C1815-02 |
| **Dilution** | 1 | **Acq. Method** | PFAS ACQUISITION.m |
| **Sample Comment** | | **Processing method** | ID_040122.m |
| **Instrument** | QQQ4 | | |




| Compound | RT | Resp. | ISTD | RT | ISTD Resp. | Final Conc | Units | MI | Reason | Analyst & Date |
|---|---|---|---|---|---|---|---|---|---|---|
| PFBA | 1.079 | 223754 | MPFBA - ISTD | 1.083 | 453768 | 2775.2481 | pg/ml | | | |
| PFBS | 1.897 | 138857 | M3PFBS - ISTD | 1.895 | 92354 | 6794.7354 | pg/ml | | | |
| PFPeA | 1.724 | 445068 | M5PFPeA - ISTD | 1.723 | 427760 | 5278.6275 | pg/ml | | | |
| PFHxA | 2.574 | 475092 | M5PFHxA - ISTD | 2.572 | 520817 | 5177.9748 | pg/ml | | | |
| 11Cl-PF3OUdS | 3.808 | 0 | M8PFOS - ISTD | 3.652 | 63667 | ND | pg/ml | ✔ | 1 | BLH 04/08/22 |
| 9Cl-PF3ONS | 3.579 | 0 | M8PFOS - ISTD | 3.652 | 63667 | ND | pg/ml | ✔ | 1 | BLH 04/08/22 |
| ADONA | 3.407 | 0 | M4PFHpA - ISTD | 3.179 | 455348 | ND | pg/ml | ✔ | 1 | BLH 04/08/22 |
| HFPO-DA | 2.815 | 0 | M3HFPO-DA - ISTD | 2.831 | 158826 | ND | pg/ml | ✔ | 1 | BLH 04/08/22 |
| 8-2 FTS | | | M2-8-2-FTS - ISTD | 3.811 | 56686 | ND | pg/ml | | | |
| PFDA | 3.812 | 4493 | M6PFDA - ISTD | 3.811 | 393080 | 63.5662 | pg/ml | ✔ | 3 | BLH 04/08/22 |
| PFDoA | 4.065 | 0 | MPFDoA - ISTD | 4.089 | 276290 | ND | pg/ml | ✔ | 1 | BLH 04/08/22 |
| PFEESA | | | M3PFBS - ISTD | 1.895 | 92354 | ND | pg/ml | | | |
| PFHpS | 3.469 | 2960 | M8PFOS - ISTD | 3.652 | 63667 | 330.0143 | pg/ml | | | |
| N-EtFOSAA | 3.970 | 0 | d5-N-EtFOSAA - ISTD | 3.962 | 82029 | ND | pg/ml | ✔ | 1 | BLH 04/08/22 |
| N-MeFOSAA | | | d3-N-MeFOSAA - ISTD | 3.882 | 112427 | ND | pg/ml | | | |
| PFTA | 4.088 | 0 | M2PFTA - ISTD | 4.330 | 352874 | ND | pg/ml | ✔ | 1 | BLH 04/08/22 |
| PFTrDA | 4.510 | 0 | M2PFTA - ISTD | 4.330 | 352874 | ND | pg/ml | ✔ | 1 | BLH 04/08/22 |
| 4-2 FTS | | | M2-4-2-FTS - ISTD | 2.489 | 41047 | ND | pg/ml | | | |
| PFDS | | | M3PFBS - ISTD | 1.895 | 92354 | ND | pg/ml | | | |
| FOSA | 4.005 | 0 | M8FOSA - ISTD | 4.005 | 160938 | ND | pg/ml | ✔ | 1 | BLH 04/08/22 |
| PFNS | 3.691 | 0 | M8PFOS - ISTD | 3.652 | 63667 | ND | pg/ml | ✔ | 1 | BLH 04/08/22 |
| FHxSA | 3.616 | 169 | M8PFOA - ISTD | 3.462 | 353557 | 6.9151 | pg/ml | | | |
| FBSA | 2.641 | 84764 | M5PFHxA - ISTD | 2.572 | 520817 | 2353.4909 | pg/ml | | | |

# 1 - FORM I
# ANALYSIS DATA SHEET

360175-DP008011

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Con-Test, a Pace Analytical Labora | | | Work Order: | 22C1815 |
| Client: | NYDEC_Wood - Portland, ME | | | Project: | Irvington- CO 142890 |
| Matrix: | Ground Water | Laboratory ID: | 22C1815-02 | File ID: | 22C1815-02.d |
| Sampled: | 03/23/22 10:45 | Prepared: | 04/05/22 09:10 | Analyzed: | 04/08/22 00:27 |
| Solids: | | Preparation: | SOP 454-PFAAS | Dilution: | 1 |
| Initial/Final: | 282.76 mL / 1 mL | | | | |
| Batch: | B304952 | Sequence: | S070144 | Calibration: | 2200163 | Instrument: | QQQ4 |

| CAS NO. | COMPOUND | CONC. (ng/L) | MDL | RL | Q |
|---|---|---|---|---|---|
| 375-22-4 | Perfluorobutanoic acid (PFBA) | 9.8 ✓ | 0.66 | 1.8 | |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 24 | 0.25 | 1.8 | |
| 2706-90-3 | Perfluoropentanoic acid (PFPeA) | 19 | 0.35 | 1.8 | |
| 307-24-4 | Perfluorohexanoic acid (PFHxA) | 18 | 0.34 | 1.8 | |
| 763051-92-9 | 11Cl-PF3OUdS (F53B Minor) | | 0.57 | 1.8 | |
| 756426-58-1 | 9Cl-PF3ONS (F53B Major) | | 0.34 | 1.8 | |
| 919005-14-4 | 4,8-dioxa-3H-perfluorononanoic acid (ADON/ | | 0.31 | 1.8 | |
| 13252-13-6 | Hexafluoropropylene oxide dimer acid (HFPC | | 0.21 | 1.8 | |
| 39108-34-4 | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | | 0.54 | 1.8 | |
| 335-76-2 | Perfluorodecanoic acid (PFDA) | | 0.43 | 1.8 | |
| 307-55-1 | Perfluorododecanoic acid (PFDoA) | | 0.39 | 1.8 | |
| 113507-82-7 | Perfluoro(2-ethoxyethane)sulfonic acid (PFEI | | 0.21 | 1.8 | |
| 375-92-8 | Perfluoroheptanesulfonic acid (PFHpS) | | 0.83 | 1.8 | |
| 2991-50-6 | N-EtFOSAA | | 0.56 | 1.8 | |
| 2355-31-9 | N-MeFOSAA | | 0.67 | 1.8 | |
| 376-06-7 | Perfluorotetradecanoic acid (PFTA) | | 0.32 | 1.8 | |
| 72629-94-8 | Perfluorotridecanoic acid (PFTrDA) | | 0.24 | 1.8 | |
| 757124-72-4 | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | | 0.25 | 1.8 | |
| 335-77-3 | Perfluorodecanesulfonic acid (PFDS) | | 0.29 | 1.8 | |
| 754-91-6 | Perfluorooctanesulfonamide (FOSA) | | 0.37 | 1.8 | |
| 68259-12-1 | Perfluorononanesulfonic acid (PFNS) | | 0.15 | 1.8 | |
| 41997-13-1 | Perfluoro-1-hexanesulfonamide (FHxSA) | | 0.27 | 1.8 | |
| 30334-69-1 | Perfluoro-1-butanesulfonamide (FBSA) | 8.3 | 0.17 | 1.8 | |
| 355-46-4 | Perfluorohexanesulfonic acid (PFHxS) | 10 | 0.30 | 1.8 | |
| 377-73-1 | Perfluoro-4-oxapentanoic acid (PFMPA) | | 0.37 | 1.8 | |
| 863090-89-5 | Perfluoro-5-oxahexanoic acid (PFMBA) | | 0.30 | 1.8 | |
| 27619-97-2 | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | | 0.32 | 1.8 | |
| 2706-91-4 | Perfluoropetanesulfonic acid (PFPeS) | | 0.23 | 1.8 | |
| 2058-94-8 | Perfluoroundecanoic acid (PFUnA) | | 0.33 | 1.8 | |
| 151772-58-6 | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA | | 0.24 | 1.8 | |

DUSR Calculations Sheet
PFAS

**Sample ID:** 360175-DP008011
**TC:** PFBA
**Val File Result for TC:** 9.8 ng/L

## Sample Calc

| | | | |
|---|---|---|---|
| **Area TC** | 223754 | | |
| **Area IS** | 453768 | **DF** | 1 |
| | | **Sample Volume** | 282.76 |
| **Conc IS** | 5000 | **final vol** | 1 |
| **Avg RRF** | 0.894004 | | |
| **Conc (ng/mL) TC =** | 2757.83 | **Conc (ng/L)** | 9.75325348 |
| | | **Final Conc (ng/L)** | 9.75325348 |

Notes:
Green = matched reported value
Red = did not match reported value

# VOCs in Air

**NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD**
**Project:** Irvington Rugs and Cleaners March 2022
**Method :** TO-15
**Laboratory and SDG(s):** **SDG#** 22C1819
**Date:** 4/28/2022
**Reviewer:** Gabrielle Davis
**Review Level** [X] NYSDEC DUSR ☐ USEPA Region II Guideline

**Control limits are from EPA Region 2 - SOP# HW-31, October 2006.**

1. ☑ **Case Narrative Review and Data Package Completeness** COMMENTS
   Were problems noted? Yes, see attached
   Are Field Sample IDs and Locations assigned correctly? YES NO (circle one)
   Were all the samples on the COC analyzed for the requested analyses? YES NO (circle one)
2. ☑ **Holding time and Sample Collection**
   Were samples analyzed within the 30 day holding time? YES NO (circle one)
3. ☑ **QC Blanks** ~~(use 5x rule for calculating action levels)~~ Normal Blank Rules
   Are method blanks free of contamination? YES NO (circle one)
4. ☑ **Instrument Tuning – Data Package Narrative Review**
   Did the laboratory narrative identify any results that were not within method criteria? YES NO (circle one)
   If yes, use professional judgment to evaluate data and qualify results if needed
5. ☑ **Instrument Calibration - Data Package Narrative Review**
   Did the laboratory narrative identify compounds that were not within method criteria (%RSD ≤30; %D ≤30) in the initial calibration and/or continuing calibration standards? YES NO

   Did the laboratory qualify results based on initial or continuing calibration exceedances? YES NO NA
   If yes to above, use professional judgment to evaluate data and qualify results if needed
6. ☑ **Internal Standards – Data Package Narrative Review**
   (Area Limits = +40% to -40%, RTs within 20 seconds of daily CCAL standard (or ICAL mid-point if samples follow ICAL))
   Did the laboratory narrative identify any sample internal standards that were not within criteria? YES NO (circle one)

   Did the laboratory qualify results based on internal standard exceedances? YES NO NA
   If yes to above, use professional judgment to evaluate data and qualify results if needed
7. ☑ **Surrogate Recovery**

   Were all results within laboratory limits? YES NO (circle one)
8. ☑ **Field Duplicates**
   Were Field Duplicates submitted/analyzed? YES NO

   Were all results were within criteria (Field Dup RPD goal = 50). YES NO NA (circle one)
9. ☑ **Laboratory Control Sample Results** (limits 70-130%)

   Were all results within limits? YES NO (circle one) See attached - subset UJ, LCSL
10. ☑ **Reporting Limits:** Were samples analyzed at a dilution? YES NO (circle one)
    All samples analyzed at 4x dilutions

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11. ☑ **Raw Data Review and Calculation Checks**

See attached for calculations

12. ☑ **Electronic Data Review and Edits**

Does the EDD match the Form Is? YES NO (circle one)

13. ☑ **Tables Review**

**Table 1** (Samples and Analytical Methods)
**Table 2** (Analytical Results)
**Table 3** (Qualification Actions)
Were all tables produced and reviewed? YES NO (circle one)

**Table 4** (TICs) Did lab report TICs? YES NO (circle one)

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DOC #378 REV3_11232021

CHAIN OF CUSTODY RECORD (AIR)

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 2

**Standard Turnaround Time**
7-Day ☐ 10-Day ☑
Due Date:

**Rush Approval Required**
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

**Data Package**
Format: PDF ☑ EXCEL ☐
Other:
CLP Like Data Pkg Required: ☐
Email To: Charles.Stapler@woodplc.com
Fax To #:

Company Name: Wood E+IS
Address: 511 Congress St, Suite 200, Portland, ME
Phone: 1-207-450 9772
Project Name: NYSDEC - Irvington Ring
Project Location: Irvington, NY
Project Number: 3616216144
Project Manager: Chuck Stapler
Pace Quote Name/Number: NYSDEC
Invoice Recipient: Wood E+IS
Sampled By: M. Ludwig

ANALYSIS REQUESTED

TO15 - low level

" Hg

| Lab Use | Client Use | Collection Data | | Duration | Flow Rate | Matrix | Volume | | | | | | | Initial Pressure | Final Pressure | Lab Receipt Pressure | Summa Can ID | Flow Controller ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pace Work Order# | Client Sample ID / Description | Beginning Date/Time | Ending Date/Time | Total Minutes Sampled | m³/min L/min | Code | Liters m³ | | | | | | | | | | | |
| 01 ✓ | 360175-GV008005 | 3/23/22 | 12:38 13:38 | 60 | | SG | | X | | | | | | -30 | -9 | 8.4 | 1931 | 4248 |
| 02 ✓ | 360175-GV009005D | 3/23/22 | 11:38 12:38 | 60 | | SG | | X | | | | | | -28 | -3 | 1.2 | 2042 | 4413 |
| 03 ✓ | 360175-GV004005 | 3/23/22 | 11:38 12:38 | 60 | | SG | | X | | | | | | -28 | -3 | 1.2 | 1734 | 4413 |
| 04 ✓ | 360175-GV016005 | 3/23/22 | 15:28 16:28 | 60 | | SG | | X | | | | | | -30 | -27 | 2.4 | 1853 | 4252 |
| 05 ✓ | 360175-GV017005 | 3/24/22 | 8:40 9:40 | 60 | | SG | | X | | | | | | -26 | -5 | 3.8 | 1146 | 4139 |
| 06 ✓ | 360175-GV010005 | 3/24/22 | 10:35 11:35 | 60 | | SG | | X | | | | | | -29 | -3 | 1.8 | 2195 | 4353 |
| 07 ✓ | 360175-GV015005 | 3/24/22 | 11:55 12:55 | 60 | | SG | | X | | | | | | -30+ | -3 | 2 | 1452 | 4354 |
| 08 ✓ | 360175-GV012005 | 3/24/22 | 13:33 14:33 | 60 | | SG | | X | | | | | | -27 | -4 | 2 | 1924 | 4329 |
| 09 ✓ | 360175-GV011005 | 3/24/22 | 15:00 16:00 | 60 | | SG | | X | | | | | | -29 | -8 | 2.2 | 1176 | 4121 |

Please fill out completely, sign, date and retain the yellow copy for your records

Summa canisters and flow controllers must be returned within 15 days of receipt or rental fees will apply

For summa canister and flow controller information please refer to Con-Test's Air Media Agreement

Comments:
* 360175-GV016005 * gauge unit 90 passed -27 after an hour.

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Matrix Codes:
SG = SOIL GAS
IA = INDOOR AIR
AMB = AMBIENT
SS = SUB SLAB
D = DUP
BL = BLANK
O = Other_____

| | Date/Time: |
|---|---|
| Relinquished by: (signature) | 3/28/22 1400 |
| Received by: (signature) | 3/29/22 1400 |
| Relinquished by: (signature) | Date/Time: |
| Received by: (signature) | Date/Time: 3/28/22 1518 |
| Relinquished by: (signature) | Date/Time: |
| Received by: (signature) GTD 4/28/2022 | Date/Time: |

Data Deliverables (Check/Initial)
NA
NYS

Special Requirements
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ Other

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Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

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DOC #378 REV3_11232021

CHAIN OF CUSTODY RECORD (AIR)

39 Spruce Street
East Longmeadow, MA 01028

Page 2 of 2

| | |
|---|---|
| Company Name: | Wood E+IS |
| Address: | 511 Congress St Suite 200 Portland ME |
| Phone: | 1-207-450-9772 |
| Project Name: | NYSDEC - Irvington Rug |
| Project Location: | Irvington, NY |
| Project Number: | 36162161144 |
| Project Manager: | Chuck Staples |
| Pace Quote Name/Number: | NYSDEC |
| Invoice Recipient: | Wood E+IS |
| Sampled By: | M-Lindsay |

**Requested Turnaround Time**
7-Day ☐ 10-Day ☑
Due Date:

**Rush Analysis Required**
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

**Data Delivery**
Format: PDF ☐ EXCEL ☑
Other:
CLP Like Data Pkg Required: ☐
Email To: charles.staples@woodplc.com
Fax To #:

ANALYSIS REQUESTED

TCLS low level

" Hg

Please fill out completely, sign, date and retain the yellow copy for your records

Summa canisters and flow controllers must be returned within 15 days of receipt or rental fees will apply

For summa canister and flow controller information please refer to Con-Test's Air Media Agreement

| Lab Use | Client Use | Collection Data | | Duration | Flow Rate | Matrix | Volume | | | | | Initial Pressure | Final Pressure | Lab Receipt Pressure | Summa Can ID | Flow Controller ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pace Work Order# | Client Sample ID / Description | Beginning Date/Time | Ending Date/Time | Total Minutes Sampled | ☐ m³/min ☑ L/min | Code | ☑ Liters ☐ m³ | | | | | | | | | |
| 10 ✓ | 360175-GW014005 | 3/25/22 | 7:40 8:40 | 60 | | SG | | X | | | | -29.4 | -29 | | 1139 | 4335 |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | |

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Matrix Codes:
SG = SOIL GAS
IA = INDOOR AIR
AMB = AMBIENT
SS = SUB SLAB
D = DUP
BL = BLANK
O = Other_____

| | | | |
|---|---|---|---|
| Relinquished by: (signature) | Date/Time: 3/25/22 1400 | Preservation Shipping Requirements | Special Requirements |
| Received by: (signature) | Date/Time: 3/28/22 1400 | | ☐ MA MCP Required |
| Relinquished by: (signature) | Date/Time: | | MCP Certification Form Required |
| Received by: (signature) | Date/Time: 3/28/22 1578 | | ☐ CT RCP Required |
| Relinquished by: (signature) | Date/Time: | | RCP Certification Form Required |
| Received by: (signature) | Date/Time: | | ☐ Other |
| | | Other | |

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Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

GTD 4/28/2022

50

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**CASE NARRATIVE SUMMARY**

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

**EPA TO-15**

**Qualifications:**

L-03 Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the low side.

**Analyte & Samples(s) Qualified:**

See attached for LCS review

**1,2,4-Trichlorobenzene**

22C1819-01[360175-GV008005], 22C1819-02[360175-GV009005D], 22C1819-03[360175-GV009005], 22C1819-04[360175-GV016005], B305329-BLK1, B305329-BS1, B305329-DUP1, B305469-BLK1, B305469-BS1

GTD 4/28/2022

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

**QUALITY CONTROL**

**Air Toxics by EPA Compendium Methods - Quality Control**

| Analyte | ppbv Results | ppbv RL | ug/m3 Results | ug/m3 RL | Spike Level ppbv | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Flag/Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B305329 - TO-15 Prep** | | | | | | | | | | | | |
| **LCS (B305329-BS1)** Associated with samples 1-4 | | | | | Prepared & Analyzed: 04/07/22 | | | | | | | |
| cis-1,3-Dichloropropene | 3.73 | | | | 5.00 | | 74.7 | | 70-130 | | | |
| trans-1,3-Dichloropropene | 3.91 | | | | 5.00 | | 78.2 | | 70-130 | | | |
| 1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114) | 4.89 | | | | 5.00 | | 97.8 | | 70-130 | | | |
| 1,4-Dioxane | 4.24 | | | | 5.00 | | 84.8 | | 70-130 | | | |
| Ethanol | 4.14 | | | | 5.00 | | 82.7 | | 70-130 | | | |
| Ethyl Acetate | 4.88 | | | | 5.00 | | 97.5 | | 70-130 | | | |
| Ethylbenzene | 4.48 | | | | 5.00 | | 89.5 | | 70-130 | | | |
| 4-Ethyltoluene | 4.67 | | | | 5.00 | | 93.5 | | 70-130 | | | |
| Heptane | 4.02 | | | | 5.00 | | 80.3 | | 70-130 | | | |
| Hexachlorobutadiene | 3.69 | | | | 5.00 | | 73.7 | | 70-130 | | | |
| Hexane | 4.48 | | | | 5.00 | | 89.6 | | 70-130 | | | |
| 2-Hexanone (MBK) | 4.07 | | | | 5.00 | | 81.4 | | 70-130 | | | |
| Isopropanol | 4.00 | | | | 5.00 | | 80.0 | | 70-130 | | | |
| Methyl tert-Butyl Ether (MTBE) | 4.37 | | | | 5.00 | | 87.4 | | 70-130 | | | |
| Methylene Chloride | 4.81 | | | | 5.00 | | 96.2 | | 70-130 | | | |
| 4-Methyl-2-pentanone (MIBK) | 3.97 | | | | 5.00 | | 79.4 | | 70-130 | | | |
| Naphthalene | 3.53 | | | | 5.00 | | 70.6 | | 70-130 | | | |
| Propene | 4.72 | | | | 5.00 | | 94.3 | | 70-130 | | | |
| Styrene | 4.57 | | | | 5.00 | | 91.5 | | 70-130 | | | |
| 1,1,2,2-Tetrachloroethane | 4.34 | | | | 5.00 | | 86.7 | | 70-130 | | | |
| Tetrachloroethylene | 4.27 | | | | 5.00 | | 85.4 | | 70-130 | | | |
| Tetrahydrofuran | 4.45 | | | | 5.00 | | 88.9 | | 70-130 | | | |
| Toluene | 4.46 | | | | 5.00 | | 89.3 | | 70-130 | | | |
| 1,2,4-Trichlorobenzene UJ, LCSL | 3.32 | | | | 5.00 | | **66.4** | * | 70-130 | | | L-03 |
| 1,1,1-Trichloroethane | 4.20 | | | | 5.00 | | 84.1 | | 70-130 | | | |
| 1,1,2-Trichloroethane | 4.58 | | | | 5.00 | | 91.6 | | 70-130 | | | |
| Trichloroethylene | 4.32 | | | | 5.00 | | 86.3 | | 70-130 | | | |
| Trichlorofluoromethane (Freon 11) | 5.45 | | | | 5.00 | | 109 | | 70-130 | | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 5.23 | | | | 5.00 | | 105 | | 70-130 | | | |
| 1,2,4-Trimethylbenzene | 4.49 | | | | 5.00 | | 89.9 | | 70-130 | | | |
| 1,3,5-Trimethylbenzene | 4.73 | | | | 5.00 | | 94.7 | | 70-130 | | | |
| Vinyl Acetate | 3.72 | | | | 5.00 | | 74.3 | | 70-130 | | | |
| Vinyl Chloride | 4.65 | | | | 5.00 | | 92.9 | | 70-130 | | | |
| m&p-Xylene | 9.49 | | | | 10.0 | | 94.9 | | 70-130 | | | |
| o-Xylene | 4.64 | | | | 5.00 | | 92.8 | | 70-130 | | | |
| *Surrogate: 4-Bromofluorobenzene (1)* | *7.67* | | | | *8.00* | | *95.9* | | *70-130* | | | |

GTD 4/28/2022

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

**QUALITY CONTROL**

**Air Toxics by EPA Compendium Methods - Quality Control**

| Analyte | ppbv Results | ppbv RL | ug/m3 Results | ug/m3 RL | Spike Level ppbv | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Flag/Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B305469 - TO-15 Prep** | | | | | | | | | | | | |
| **LCS (B305469-BS1)** Associated with sample 4RE - ethanol only | | | | | Prepared & Analyzed: 04/08/22 | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 4.25 | | | | 5.00 | | 84.9 | | 70-130 | | | |
| Tetrachloroethylene | 4.22 | | | | 5.00 | | 84.3 | | 70-130 | | | |
| Tetrahydrofuran | 4.43 | | | | 5.00 | | 88.6 | | 70-130 | | | |
| Toluene | 4.36 | | | | 5.00 | | 87.1 | | 70-130 | | | |
| 1,2,4-Trichlorobenzene Not associated -no quals | 3.40 | | | | 5.00 | | **68.1** | * | 70-130 | | | L-03 |
| 1,1,1-Trichloroethane | 4.16 | | | | 5.00 | | 83.1 | | 70-130 | | | |
| 1,1,2-Trichloroethane | 4.50 | | | | 5.00 | | 90.0 | | 70-130 | | | |
| Trichloroethylene | 4.23 | | | | 5.00 | | 84.6 | | 70-130 | | | |
| Trichlorofluoromethane (Freon 11) | 5.43 | | | | 5.00 | | 109 | | 70-130 | | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 5.24 | | | | 5.00 | | 105 | | 70-130 | | | |
| 1,2,4-Trimethylbenzene | 4.42 | | | | 5.00 | | 88.4 | | 70-130 | | | |
| 1,3,5-Trimethylbenzene | 4.64 | | | | 5.00 | | 92.7 | | 70-130 | | | |
| Vinyl Acetate | 3.57 | | | | 5.00 | | 71.4 | | 70-130 | | | |
| Vinyl Chloride | 4.62 | | | | 5.00 | | 92.4 | | 70-130 | | | |
| m&p-Xylene | 9.43 | | | | 10.0 | | 94.3 | | 70-130 | | | |
| o-Xylene | 4.60 | | | | 5.00 | | 92.0 | | 70-130 | | | |
| *Surrogate: 4-Bromofluorobenzene (1)* | *7.64* | | | | *8.00* | | *95.4* | | *70-130* | | | |

GTD 4/28/2022

All within limits - no quals

Sample ID: 360175-GV009005 / 360175-GV009005D

| Compound | Result | LabQual | DF | Dup | LabQual | DF | RPD |
|---|---|---|---|---|---|---|---|
| acetone | 14 | | | 13 | | | 7.4 |
| 1,3-dichlorobenzene | 0.3 | | | 0.38 | | | 23.5 |
| dichlorodifluoromethane | 0.47 | | | 0.43 | | | 8.9 |
| ethanol | 54 | | | 55 | | | 1.8 |
| tetrachloroethylene | 0.68 | | | 0.74 | | | 8.5 |
| toluene | 0.49 | | | 0.5 | | | 2.0 |

GTD 4/28/2022

Response Factor Report SYSG

Method Path : C:\msdchem\1\methods\
Method File : G031122.m
Title : New Column Method G021015
Last Update : Sun Mar 13 11:52:17 2022
Response Via : Initial Calibration

Calibration Files
0.02=G22A070003.D 0.05=G22A070004.D 0.10=G22A070005.D 0.20=G22A070006.D 0.50=G22A070007.D 1.0 =G22A070009.D
2.0 =G22A070010.D 5.0 =G22A070011.D 10 =G22A070012.D 20 =G22A070013.D 50 =G22A070014.D

| | | Compound | 0.02 | 0.05 | 0.10 | 0.20 | 0.50 | 1.0 | 2.0 | 5.0 | 10 | 20 | 50 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) | I | BROMOCHLOROMETHANE... | ----------ISTD---------- | | | | | | | | | | | | |
| 2) | | PROPENE | | | | | 0.569 | 0.692 | 0.583 | 0.545 | 0.530 | 0.523 | 0.519 | 0.566 | 10.68 |
| 3) | | DICHLORODIFLUO... | | 1.978 | 1.815 | 1.723 | 1.626 | 2.142 | 1.899 | 1.770 | 1.714 | 1.551 | 1.208 | 1.743 | 14.61 |
| 4) | | CHLOROMETHANE | | 0.780 | 0.701 | 0.692 | 0.658 | 0.843 | 0.729 | 0.680 | 0.659 | 0.646 | 0.632 | 0.702 | 9.40 |
| 5) | | FREON 114 | | 2.246 | 2.003 | 1.917 | 1.878 | 2.310 | 2.044 | 1.895 | 1.812 | 1.732 | 1.504 | 1.934 | 12.20 |
| 6) | | VINYL CHLORIDE | 1.135 | 0.869 | 0.808 | 0.762 | 0.726 | 0.937 | 0.806 | 0.752 | 0.736 | 0.721 | 0.716 | 0.815 | 15.50 |
| 7) | | 1,3-BUTADIENE | | 0.604 | 0.611 | 0.541 | 0.525 | 0.680 | 0.594 | 0.558 | 0.545 | 0.542 | 0.532 | 0.573 | 8.47 |
| 8) | | BROMOMETHANE | | 0.750 | 0.731 | 0.681 | 0.655 | 0.829 | 0.727 | 0.673 | 0.645 | 0.623 | 0.575 | 0.689 | 10.52 |
| 9) | | CHLOROETHANE | | 0.471 | 0.408 | 0.379 | 0.360 | 0.448 | 0.383 | 0.357 | 0.348 | 0.338 | 0.329 | 0.382 | 12.34 |
| 10) | | ACROLEIN | | 0.392 | 0.287 | 0.284 | 0.263 | 0.327 | 0.292 | 0.292 | 0.281 | 0.281 | 0.283 | 0.298 | 12.26 |
| 11) | | ACETONE | | | | | 1.167 | 1.260 | 1.161 | 1.106 | 1.071 | 1.049 | 1.028 | 1.120 ✓ | 7.26 ✓ |
| 12) | | TRICHLOROFLUOR... | | 1.933 | 1.787 | 1.652 | 1.625 | 2.111 | 1.817 | 1.692 | 1.595 | 1.537 | 1.397 | 1.715 | 11.98 |
| 13) | | ETHANOL | | | | | 0.264 | 0.279 | 0.254 | 0.244 | 0.248 | 0.239 | 0.228 | 0.251 | 6.71 |
| 14) | | 1,1-DICHLOROET... | 1.476 | 1.289 | 1.115 | 1.068 | 1.025 | 1.382 | 1.194 | 1.123 | 1.112 | 1.113 | 1.120 | 1.183 | 11.86 |
| 15) | | METHYLENE CHLO... | | 1.058 | 0.895 | 0.844 | 0.803 | 1.031 | 0.886 | 0.819 | 0.800 | 0.796 | 0.800 | 0.873 | 11.16 |
| 16) | | FREON 113 | | 1.490 | 1.440 | 1.320 | 1.313 | 1.726 | 1.484 | 1.387 | 1.368 | 1.393 | 1.393 | 1.431 | 8.35 |
| 17) | | CARBON DISULFIDE | | 2.050 | 1.902 | 1.800 | 1.749 | 2.352 | 2.024 | 1.889 | 1.861 | 1.870 | 1.879 | 1.938 | 8.84 |
| 18) | | TRANS-1,2-DICH... | 1.230 | 1.019 | 0.923 | 0.839 | 0.854 | 1.135 | 0.989 | 0.936 | 0.935 | 0.960 | 0.988 | 0.983 | 11.67 |
| 19) | | 1,1-DICHLOROET... | 1.685 | 1.434 | 1.326 | 1.222 | 1.197 | 1.518 | 1.327 | 1.243 | 1.214 | 1.216 | 1.224 | 1.328 | 11.84 |
| 20) | | MTBE | | 1.774 | 1.725 | 1.578 | 1.567 | 1.844 | 1.754 | 1.745 | 1.775 | 1.815 | 1.868 | 1.745 | 5.78 |
| 21) | | IPA | | 1.689 | 1.487 | 1.326 | 1.321 | 1.513 | 1.382 | 1.373 | 1.352 | 1.332 | 1.264 | 1.404 | 8.94 |
| 22) | | 2-BUTANONE(MEK) | | 1.644 | 1.397 | 1.263 | 1.259 | 1.482 | 1.385 | 1.376 | 1.399 | 1.411 | 1.433 | 1.405 | 7.74 |
| 23) | | CIS-1,2-DICHLO... | 1.196 | 0.978 | 0.864 | 0.843 | 0.809 | 1.074 | 0.937 | 0.901 | 0.901 | 0.926 | 0.951 | 0.944 | 11.63 |
| 24) | | VINYL ACETATE | | 2.262 | 1.982 | 1.793 | 1.811 | 2.168 | 1.942 | 1.860 | 1.837 | 1.909 | 1.962 | 1.952 | 7.88 |
| 25) | | HEXANE | | 1.037 | 0.869 | 0.802 | 0.740 | 0.984 | 0.860 | 0.828 | 0.822 | 0.840 | 0.852 | 0.863 | 10.02 |
| 26) | | ETHYL ACETATE | | 0.249 | 0.202 | 0.211 | 0.185 | 0.221 | 0.211 | 0.214 | 0.218 | 0.224 | 0.233 | 0.217 | 7.93 |
| 27) | | CHLOROFORM | 1.889 | 1.640 | 1.512 | 1.433 | 1.409 | 1.822 | 1.590 | 1.493 | 1.464 | 1.479 | 1.479 | 1.565 | 10.14 |
| 28) | | TETRAHYDROFURAN | | 0.304 | 0.259 | 0.253 | 0.251 | 0.300 | 0.283 | 0.289 | 0.300 | 0.307 | 0.317 | 0.286 | 8.36 |
| 29) | | 1,2-DICHLOROET... | 1.298 | 1.034 | 0.941 | 0.875 | 0.841 | 1.107 | 0.972 | 0.924 | 0.910 | 0.921 | 0.944 | 0.979 | 13.13 |
| 30) | I | 1,4-DIFLUOROBENZEN... | ----------ISTD---------- | | | | | | | | | | | | |
| 31) | | 1,1,1-TRICHLOR... | 0.680 | 0.605 | 0.555 | 0.523 | 0.499 | 0.664 | 0.576 | 0.541 | 0.540 | 0.545 | 0.564 | 0.572 | 9.91 |
| 32) | | BENZENE | | 0.859 | 0.800 | 0.760 | 0.738 | 0.966 | 0.857 | 0.815 | 0.809 | 0.822 | 0.814 | 0.824 | 7.56 |
| 33) | | CARBON TETRACH... | 0.674 | 0.542 | 0.505 | 0.497 | 0.482 | 0.637 | 0.561 | 0.532 | 0.523 | 0.535 | 0.545 | 0.548 | 10.62 |
| 34) | | CYCLOHEXANE | | 0.400 | 0.485 | 0.372 | 0.312 | 0.392 | 0.342 | 0.330 | 0.330 | 0.337 | 0.344 | 0.365 | 13.93 |
| 35) | | 1,2-DICHLOROPR... | 0.453 | 0.337 | 0.318 | 0.283 | 0.289 | 0.363 | 0.326 | 0.311 | 0.307 | 0.314 | 0.320 | 0.329 | 14.05 |
| 36) | | BROMODICHLOROM... | 0.781 | 0.685 | 0.625 | 0.593 | 0.568 | 0.734 | 0.649 | 0.624 | 0.619 | 0.630 | 0.645 | 0.650 | 9.48 |
| 37) | | TRICHLOROETHENE | 0.453 | 0.402 | 0.348 | 0.326 | 0.312 | 0.416 | 0.372 | 0.363 | 0.366 | 0.379 | 0.382 | 0.374 | 10.65 |
| 38) | | 1,4-DIOXANE | | 0.187 | 0.160 | 0.162 | 0.145 | 0.176 | 0.169 | 0.175 | 0.181 | 0.183 | 0.173 | 0.171 | 7.36 |
| 39) | | METHYLMETHACRY... | | 0.284 | 0.254 | 0.240 | 0.239 | 0.298 | 0.290 | 0.296 | 0.304 | 0.312 | 0.330 | 0.285 | 10.78 |
| 40) | | HEPTANE | | 0.257 | 0.224 | 0.211 | 0.208 | 0.283 | 0.257 | 0.256 | 0.258 | 0.263 | 0.276 | 0.249 | 10.43 |
| 41) | | MIBK | | 0.617 | 0.590 | 0.547 | 0.562 | 0.687 | 0.667 | 0.684 | 0.698 | 0.715 | 0.734 | 0.650 | 10.17 |
| 42) | | CIS-1,3-DICHLO... | 0.565 | 0.465 | 0.429 | 0.402 | 0.394 | 0.520 | 0.476 | 0.478 | 0.487 | 0.505 | 0.522 | 0.476 | 11.01 |

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GTD 4/28/2022

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\data\G031122\G22A070009.D Vial: 3
Acq On : 11 Mar 2022 7:55 pm Operator: BRF
Sample : 1.0PPBV STD Inst : SYSG
Misc : CTWS-3854-1300 Multiplr: 1.00
Quant Time: Mar 13 11:43:31 2022

Quant Method : C:\msdchem\1\methods\G120821.m
Quant Title : New Column Method G021015
QLast Update : Thu Dec 09 07:09:08 2021
Response via : Initial Calibration
DataAcq Meth:GRUN042419.M

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| **Internal Standards** | | | | | | |
| 1) BROMOCHLOROMETHANE (1) | 8.497 | 49 | 1354564 | 8.000 | PPBV | # 0.00 |
| 30) 1,4-DIFLUOROBENZENE (1) | 10.265 | 114 | 3438564 | 8.000 | PPBV | -0.01 |
| 44) CHLOROBENZENE-D5 (1) | 14.636 | 117 | 3167402 | 8.000 | PPBV | 0.00 |
| **System Monitoring Compounds** | | | | | | |
| 58) 4-BROMOFLUOROBENZENE (1) | 16.386 | 174 | 1881280 | 9.015 | PPBV | 0.00 |
| Spiked Amount 8.000 | Range 70 - 130 | | Recovery = 112.75% | | | |
| **Target Compounds** | | | | | | Qvalue |
| 2) PROPENE | 4.284 | 41 | 117104 | 1.087 | PPBV | 96 |
| 3) DICHLORODIFLUOROMETHANE | 4.357 | 85 | 362690 | 1.408 | PPBV | 95 |
| 4) CHLOROMETHANE | 4.516 | 50 | 142800 | 1.381 | PPBV | 95 |
| 5) FREON 114 | 4.613 | 85 | 391074 | 1.457 | PPBV | 84 |
| 6) VINYL CHLORIDE | 4.729 | 62 | 158608 | 1.339 | PPBV | 94 |
| 7) 1,3-BUTADIENE | 4.857 | 54 | 115128 | 1.366 | PPBV | 90 |
| 8) BROMOMETHANE | 5.113 | 94 | 140326 | 1.415 | PPBV | 99 |
| 9) CHLOROETHANE | 5.266 | 64 | 75772 | 1.387 | PPBV | 96 |
| 10) ACROLEIN | 5.699 | 56 | 55294 | 1.692 | PPBV | 97 |
| 11) ACETONE | 5.827 | 43 | 213356 | 1.339 | PPBV | 93 |
| 12) TRICHLOROFLUOROMETHANE | 5.955 | 101 | 357493 | 1.554 | PPBV | 94 |
| 13) ETHANOL | 5.388 | 45 | 47193 | 1.885 | PPBV | 93 |
| 14) 1,1-DICHLOROETHENE | 6.509 | 61 | 233984 | 1.217 | PPBV | 97 |
| 15) METHYLENE CHLORIDE | 6.607 | 49 | 174635 | 1.160 | PPBV | 89 |
| 16) FREON 113 | 6.851 | 101 | 292275 | 1.230 | PPBV | 92 |
| 17) CARBON DISULFIDE | 6.887 | 76 | 398280 | 1.045 | PPBV | 93 |
| 18) TRANS-1,2-DICHLOROETHENE | 7.430 | 61 | 192174 | 1.063 | PPBV | 96 |
| 19) 1,1-DICHLOROETHANE | 7.613 | 63 | 256964 | 1.074 | PPBV | 99 |
| 20) MTBE | 7.704 | 73 | 312298 | 0.949 | PPBV | 94 |
| 21) IPA | 6.040 | 45 | 256194 | 1.404 | PPBV | 75 |
| 22) 2-BUTANONE(MEK) | 7.991 | 43 | 250957 | 0.981 | PPBV | 91 |
| 23) CIS-1,2-DICHLOROETHENE | 8.350 | 61 | 181867 | 1.068 | PPBV | 99 |
| 24) VINYL ACETATE | 7.741 | 43 | 367109m | 1.778 | PPBV | |
| 25) HEXANE | 8.552 | 41 | 166601 | 1.244 | PPBV | 92 |
| 26) ETHYL ACETATE | 8.564 | 61 | 37430 | 0.646 | PPBV | 92 |
| 27) CHLOROFORM | 8.607 | 83 | 308474 | 1.171 | PPBV | 98 |
| 28) TETRAHYDROFURAN | 9.021 | 71 | 50778 | 0.883 | PPBV | 98 |
| 29) 1,2-DICHLOROETHANE | 9.289 | 62 | 187456 | 1.204 | PPBV | 95 |
| 31) 1,1,1-TRICHLOROETHANE | 9.533 | 97 | 285582 | 1.265 | PPBV | 95 |
| 32) BENZENE | 9.954 | 78 | 415302 | 1.034 | PPBV | 98 |
| 33) CARBON TETRACHLORIDE | 10.100 | 117 | 273894 | 1.403 | PPBV | 99 |
| 34) CYCLOHEXANE | 10.222 | 84 | 168521 | 0.988 | PPBV # | 9 |
| 35) 1,2-DICHLOROPROPANE | 10.722 | 63 | 156168 | 0.971 | PPBV | 92 |
| 36) BROMODICHLOROMETHANE | 10.893 | 83 | 315286 | 1.157 | PPBV | 96 |
| 37) TRICHLOROETHENE | 10.941 | 95 | 178932 | 1.060 | PPBV | 92 |
| 38) 1,4-DIOXANE | 10.972 | 88 | 75847 | 0.904 | PPBV # | 79 |
| 39) METHYLMETHACRYLATE | 11.124 | 69 | 128194 | 0.926 | PPBV # | 83 |
| 40) HEPTANE | 11.234 | 57 | 121773 | 0.953 | PPBV | 92 |
| 41) MIBK | 11.832 | 43 | 295127 | 0.981 | PPBV | 91 |
| 42) CIS-1,3-DICHLOROPROPENE | 11.771 | 75 | 223435 | 1.044 | PPBV | 95 |
| 43) TRANS-1,3-DICHLOROPROPENE | 12.283 | 75 | 197278 | 1.083 | PPBV | 97 |
| 45) 1,1,2-TRICHLOROETHANE | 12.466 | 97 | 167663 | 1.105 | PPBV | 96 |
| 46) TOLUENE | 12.770 | 91 | 458268 | 1.061 | PPBV | 95 |
| 47) 2-HEXANONE(MBK) | 13.045 | 43 | 270257 | 1.039 | PPBV | 96 |
| 48) DIBROMOCHLOROMETHANE | 13.191 | 129 | 278749 | 1.323 | PPBV | 92 |
| 49) 1,2-DIBROMOETHANE | 13.453 | 107 | 257848 | 1.158 | PPBV | 97 |
| 50) TETRACHLOROETHENE | 13.953 | 166 | 206871 | 1.232 | PPBV | 94 |
| 51) CHLOROBENZENE | 14.685 | 112 | 372731 | 1.124 | PPBV | 89 |
| 52) ETHYLBENZENE | 15.105 | 91 | 569021 | 1.053 | PPBV | 100 |
| 53) M/P-XYLENE | 15.313 | 91 | 900925 | 2.214 | PPBV | 99 |

GTD 4/28/2022

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\data\G040722\G22A097009.D Vial: 3
Acq On : 7 Apr 2022 2:28 pm Operator: BRF
Sample : 22C1819-01 4X Inst : SYSG
Misc : 1.5,1,400,150,4X Multiplr: 1.00
Quant Time: Apr 08 10:50:33 2022

Quant Method : C:\msdchem\1\methods\G031122.m
Quant Title : New Column Method G021015
QLast Update : Sun Mar 13 11:52:17 2022
Response via : Initial Calibration
DataAcq Meth:GRUN042419.M

| Compound | R.T. | QIon | Response | Conc | Units | | Dev(Min) |
|---|---|---|---|---|---|---|---|
| Internal Standards | | | | | | | |
| 1) BROMOCHLOROMETHANE (1) | 8.485 | 49 | 1204099 | 8.000 | PPBV | | -0.01 |
| 30) 1,4-DIFLUOROBENZENE (1) | 10.259 | 114 | 3241350 | 8.000 | PPBV | | -0.01 |
| 44) CHLOROBENZENE-D5 (1) | 14.630 | 117 | 3074020 | 8.000 | PPBV | | 0.00 |
| System Monitoring Compounds | | | | | | | |
| 58) 4-BROMOFLUOROBENZENE (1) | 16.379 | 174 | 1690025 | 7.538 | PPBV | | 0.00 |
| Spiked Amount 8.000 | Range 70 - 130 | | Recovery = 94.25% | | | | |
| Target Compounds | | | | | | | Qvalue |
| 3) DICHLORODIFLUOROMETHANE | 4.345 | 85 | 24944 | 0.095 | PPBV | | 98 |
| 6) VINYL CHLORIDE | 4.717 | 62 | 10228 | 0.083 | PPBV | | 90 |
| 10) ACROLEIN | 5.680 | 56 | 9871 | 0.220 | PPBV | | 99 |
| 11) ACETONE | 5.802 | 43 | 1015485 | 6.023 | PPBV | ✓ | 95 |
| 12) TRICHLOROFLUOROMETHANE | 5.936 | 101 | 15461 | 0.060 | PPBV | | 90 |
| 13) ETHANOL | 5.369 | 45 | 489506 | 12.970 | PPBV | | 92 |
| 14) 1,1-DICHLOROETHENE | 6.491 | 61 | 5397m | 0.030 | PPBV | | |
| 15) METHYLENE CHLORIDE | 6.595 | 49 | 3942 | 0.030 | PPBV | # | 60 |
| 16) FREON 113 | 6.833 | 101 | 3869 | 0.018 | PPBV | | 87 |
| 17) CARBON DISULFIDE | 6.875 | 76 | 10752 | 0.037 | PPBV | | 95 |
| 18) TRANS-1,2-DICHLOROETHENE | 7.418 | 61 | 80726 | 0.546 | PPBV | | 92 |
| 21) IPA | 6.028 | 45 | 115505 | 0.547 | PPBV | | 94 |
| 22) 2-BUTANONE(MEK) | 7.973 | 43 | 49412 | 0.234 | PPBV | | 91 |
| 23) CIS-1,2-DICHLOROETHENE | 8.338 | 61 | 771887 | 5.435 | PPBV | | 91 |
| 25) HEXANE | 8.533 | 41 | 14656 | 0.110 | PPBV | | 92 |
| 26) ETHYL ACETATE | 8.546 | 61 | 6691 | 0.205 | PPBV | | 87 |
| 27) CHLOROFORM | 8.594 | 83 | 29438 | 0.125 | PPBV | | 97 |
| 29) 1,2-DICHLOROETHANE | 9.283 | 62 | 2135 | 0.014 | PPBV | | 96 |
| 32) BENZENE | 9.942 | 78 | 10329 | 0.031 | PPBV | | 90 |
| 37) TRICHLOROETHENE | 10.935 | 95 | 795726 | 5.245 | PPBV | | 93 |
| 40) HEPTANE | 11.228 | 57 | 9614 | 0.095 | PPBV | | 87 |
| 46) TOLUENE | 12.758 | 91 | 117113 | 0.299 | PPBV | | 93 |
| 50) TETRACHLOROETHENE | 13.947 | 166 | 7027448 | 38.845 | PPBV | | 94 |
| 52) ETHYLBENZENE | 15.099 | 91 | 18060 | 0.037 | PPBV | | 100 |
| 53) M/P-XYLENE | 15.294 | 91 | 43311 | 0.115 | PPBV | | 99 |
| 56) O-XYLENE | 15.837 | 91 | 18124 | 0.046 | PPBV | | 96 |
| 62) 1,3-DICHLOROBENZENE | 18.251 | 146 | 35495 | 0.126 | PPBV | | 96 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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# 1 - FORM I
# ANALYSIS DATA SHEET

360175-GV008005

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Con-Test, a Pace Analytical Labora | | | Work Order: | 22C1819 |
| Client: | NYDEC_Wood - Portland, ME | | | Project: | Irvington AIR- CO 142890 |
| Matrix: | Soil Gas | Laboratory ID: | 22C1819-01 | File ID: | G22A097009.D |
| Sampled: | 03/23/22 13:38 | Prepared: | 04/07/22 09:19 | Analyzed: | 04/07/22 14:28 |
| Solids: | | Preparation: | TO-15 Prep | Dilution: | 4 |
| Initial/Final: | 400 mL / 400 mL | | | | |
| Batch: | B305329 | Sequence: | S070128 | Calibration: | 2200100 | Instrument: | SYSG |

| CAS NO. | COMPOUND | CONC. (ppbv) | MDL | RL | Q |
|---|---|---|---|---|---|
| 67-64-1 | Acetone | 24 ✓ | 4.8 | 8.0 | |
| 71-43-2 | Benzene | | 0.15 | 0.20 | |
| 100-44-7 | Benzyl chloride | | 0.18 | 0.20 | |
| 75-27-4 | Bromodichloromethane | | 0.14 | 0.20 | |
| 75-25-2 | Bromoform | | 0.14 | 0.20 | |
| 74-83-9 | Bromomethane | | 0.16 | 0.20 | |
| 106-99-0 | 1,3-Butadiene | | 0.17 | 0.20 | |
| 78-93-3 | 2-Butanone (MEK) | | 2.1 | 8.0 | |
| 75-15-0 | Carbon Disulfide | | 0.18 | 2.0 | |
| 56-23-5 | Carbon Tetrachloride | | 0.16 | 0.20 | |
| 108-90-7 | Chlorobenzene | | 0.13 | 0.20 | |
| 75-00-3 | Chloroethane | | 0.15 | 0.20 | |
| 67-66-3 | Chloroform | 0.50 | 0.19 | 0.20 | |
| 74-87-3 | Chloromethane | | 0.16 | 0.40 | |
| 110-82-7 | Cyclohexane | | 0.13 | 0.20 | |
| 124-48-1 | Dibromochloromethane | | 0.13 | 0.20 | |
| 106-93-4 | 1,2-Dibromoethane (EDB) | | 0.12 | 0.20 | |
| 95-50-1 | 1,2-Dichlorobenzene | | 0.11 | 0.20 | |
| 541-73-1 | 1,3-Dichlorobenzene | 0.50 | 0.11 | 0.20 | |
| 106-46-7 | 1,4-Dichlorobenzene | | 0.13 | 0.20 | |
| 75-71-8 | Dichlorodifluoromethane (Freon 12) | 0.38 | 0.20 | 0.20 | |
| 75-34-3 | 1,1-Dichloroethane | | 0.17 | 0.20 | |
| 107-06-2 | 1,2-Dichloroethane | | 0.18 | 0.20 | |
| 75-35-4 | 1,1-Dichloroethylene | | 0.15 | 0.20 | |
| 156-59-2 | cis-1,2-Dichloroethylene | 22 | 0.15 | 0.20 | |
| 156-60-5 | trans-1,2-Dichloroethylene | 2.2 | 0.16 | 0.20 | |
| 78-87-5 | 1,2-Dichloropropane | | 0.11 | 0.20 | |
| 10061-01-5 | cis-1,3-Dichloropropene | | 0.10 | 0.20 | |
| 10061-02-6 | trans-1,3-Dichloropropene | GTD 4/28/2022 | 0.10 | 0.20 | |
| 76-14-2 | 1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon | | 0.20 | 0.20 | |

DUSR Calculations Sheet

**Sample ID:** 360175-GV008005
**TC:** Acetone
**ICAL Level:** 2
**Val File Result for TC:** 57 ug/m3

## Ical Calc

| | | | |
|---|---|---|---|
| **Area TC** | 213356 | **1** | 1.167 |
| **Area IS** | 1354564 | **2** | 1.26 |
| | | **3** | 1.161 |
| **Conc TC** | 1 | **4** | 1.106 |
| **Conc IS** | 8 | **5** | 1.071 |
| | | **6** | 1.049 |
| **RRF =** | 1.260072 | **7** | 1.028 |
| | | **8** | |
| | | **9** | |
| | | **10** | |
| | | **Avg RRF =** | 1.120286 |
| | | **Std Dev =** | 0.081232 |
| | | **%RSD =** | 7.250971 |

## Sample Calc

| | | | |
|---|---|---|---|
| **Area TC** | 1015485 | **Pi** | |
| **Area IS** | 1204099 | **Pf** | |
| | | **Canister DF** | 4 |
| **Conc IS** | 8 | | |
| **Avg RRF** | 1.120286 | | |
| | | | |
| **Conc TC (ug/L) =** | 6.02244 | **Conc (ug/L) =** | 24.08976 |
| | | **Conc (ug/m3) =** | 57.1775 |

Notes:
Green = matched reported value
Red = did not match reported value

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# VOCs

**NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD**
**Project:** Irvington Rugs and Cleaners May 2022
**Method:** 8260D
**Laboratory:** Con-test **SDG(s):** 22E1903
**Date:** 7/13/2022
**Reviewer:** Gabrielle Davis

**Review Level** [X] NYSDEC DUSR [ ] USEPA Region II Guideline

1. ☑ **Case Narrative Review and COC/Data Package Completeness** COMMENTS
   Were problems noted? Yes, see attached
   Are Field Sample IDs and Locations assigned correctly? YES NO (circle one)
   Were all the samples on the COC analyzed for the requested analyses? YES NO (circle one)
2. ☑ **Holding time and Sample Collection**
   All samples were analyzed within the 14 day holding time. YES NO (circle one)
3. ☑ **QC Blanks**
   Are method blanks free of contamination? YES NO (circle one)

   Are Trip blanks free of contamination? YES NO (circle one)

   Are Rinse blanks free of contamination? YES NO NA (circle one)
4. ☑ **Instrument Tuning – Data Package Narrative Review**
   Did the laboratory narrative identify any results that were not within method criteria? YES NO (circle one)
   If yes, use professional judgment to evaluate data and qualify results if needed
5. ☑ **Instrument Calibration – Data Package Narrative Review**
   Did the laboratory narrative identify compounds that were not within criteria in the initial and/or continuing calibration standards? YES NO (circle one)

   Initial Calibration %RSD = 20% **(30% for 1,1-DCE, chloroform, 1,2-DCP, toluene, ethylbenzene, VC)**
   Initial Avg RRF and Continuing RRF should be ≥ 0.05 and 0.10 for Chloromethane, 1,1-Dichloroethane, Bromoform and 0.30 for Chlorobenzene and 1,1,2,2-Tetrachloroethane

   Continuing Calibration %D = 20% See attached subsets J-/UJ, CCV%D

   Did the laboratory qualify results based on initial or continuing calibration exceedances? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed
6. ☑ **Internal Standards – Data Package Narrative Review**
   (Area Limits = -50% to +100%, RTs within 30 seconds of daily CCAL standard (or ICAL mid-point if samples follow ICAL)
   Did the laboratory narrative identify any sample internal standards that were not within criteria? YES NO (circle one)

   Did the laboratory qualify results based on internal standard exceedances? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed
7. ☑ **Surrogate Recovery** - Region II limits (water 80-120%, soil 70-130%)

   Were all results within Region II limits? YES NO (circle one)
8. ☑ **Matrix Spike** - Region II limits (water and soil 70-130%, water RPD 20, soil RPD 35)

   Were MS/MSDs submitted/analyzed? YES NO

   Were all results within the Region II limits? YES NO NA (circle one)

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9. ☑ **Duplicates** - Region II Limits (water RPD 50, soil RPD 100)

Were Field Duplicates submitted/analyzed? YES NO

Were all results within Region II limits? (soil RPD<100, water RPD<50) YES NO NA

10. ☑ **Laboratory Control Sample Results** - Region II (Water and soil 70-130%)

See attached - subset UJ, LCSL

Were all results were within Region II control limits? YES NO (circle one)

11. ☑ **Reporting Limits:** Were samples analyzed at a dilution? YES NO (circle one)

12. ☑ **Raw Data Review and Calculation Checks**

See attached for calculations

13. ☑ **Electronic Data Review and Edits**

Does the EDD match the Form Is? YES NO (circle one)

14. ☑ **Tables and TIC Review**

**Table 1** (Samples and Analytical Methods)
**Table 2** (Analytical Results)
**Table 3** (Qualification Actions)
Were all tables produced and reviewed? YES NO (circle one)

**Table 4** (TICs) Did lab report TICs? YES NO (circle one)

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NYDEC_Wood - Portland, ME
511 Congress Street, Suite 200
Portland, ME 04101
ATTN: Chuck R. Staples

REPORT DATE: 6/7/2022

PURCHASE ORDER NUMBER: 142890

PROJECT NUMBER: 3616216144.02

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 22E1903

The results of analyses performed on the following samples submitted to Con-Test, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: Irvington, NY

| FIELD SAMPLE # | LAB ID: | MATRIX | SAMPLE DESCRIPTION | TEST | SUB LAB |
|---|---|---|---|---|---|
| 360175-DP08011 ✓ | 22E1903-01 | Ground Water | | SW-846 8260D | |
| 360175-DP01009 ✓ | 22E1903-02 | Ground Water | | SW-846 8260D | |
| 360175-DP015010 ✓ | 22E1903-03 | Ground Water | | SW-846 8260D | |
| 360175-DP016012 ✓ | 22E1903-04 | Ground Water | | SW-846 8260D | |
| 360175-DP017012 ✓ | 22E1903-05 | Ground Water | | SW-846 8260D | |
| 360175-DP01108 ✓ | 22E1903-06 | Ground Water | | SW-846 8260D | |
| 360175-DP01206 ✓ | 22E1903-07 | Ground Water | | SW-846 8260D | |
| 360175-TB522 ✓ | 22E1903-08 | Ground Water | | SW-846 8260D | |

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**CASE NARRATIVE SUMMARY**

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

**SW-846 8260D**

**Qualifications:**

**L-07**

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.

**Analyte & Samples(s) Qualified:**

**Chloroethane** See attached for LCS review
B309448-BS1

**V-05**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

**Analyte & Samples(s) Qualified:**

**2-Butanone (MEK)**
22E1903-01[360175-DP08011], 22E1903-02[360175-DP01009], 22E1903-03[360175-DP015010], 22E1903-04[360175-DP016012], 22E1903-05[360175-DP017012], 22E1903-06[360175-DP01108], 22E1903-07[360175-DP01206], 22E1903-08[360175-TB522], B309448-BLK1, B309448-BS1, B309448-BSD1, S072140-CCV1

**2-Hexanone (MBK)** J-/UJ, CCV%D
22E1903-01[360175-DP08011], 22E1903-02[360175-DP01009], 22E1903-03[360175-DP015010], 22E1903-04[360175-DP016012], 22E1903-05[360175-DP017012], 22E1903-06[360175-DP01108], 22E1903-07[360175-DP01206], 22E1903-08[360175-TB522], B309448-BLK1, B309448-BS1, B309448-BSD1, S072140-CCV1

**Methylene Chloride**
22E1903-01[360175-DP08011], 22E1903-02[360175-DP01009], 22E1903-03[360175-DP015010], 22E1903-04[360175-DP016012], 22E1903-05[360175-DP017012], 22E1903-06[360175-DP01108], 22E1903-07[360175-DP01206], 22E1903-08[360175-TB522], B309448-BLK1, B309448-BS1, B309448-BSD1, S072140-CCV1

**tert-Butyl Alcohol (TBA)**
22E1903-01[360175-DP08011], 22E1903-02[360175-DP01009], 22E1903-03[360175-DP015010], 22E1903-04[360175-DP016012], 22E1903-05[360175-DP017012], 22E1903-06[360175-DP01108], 22E1903-07[360175-DP01206], 22E1903-08[360175-TB522], B309448-BLK1, B309448-BS1, B309448-BSD1, S072140-CCV1

**V-20**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

**Analyte & Samples(s) Qualified:**

**Chloroethane**
B309448-BS1, B309448-BSD1, S072140-CCV1

Lab QC - no quals

**Chloromethane**
B309448-BS1, B309448-BSD1, S072140-CCV1

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The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Tod E. Kopyscinski
Laboratory Director

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 70-130 | | | | |
| **Batch B309448 - SW-846 5030B** | | | | | | | | | | | | | |
| **LCS (B309448-BS1)** | | | | | Prepared & Analyzed: 05/27/22 | | | | | | | | |
| Carbon Tetrachloride | 10.9 | 5.0 | 0.16 | µg/L | 10.0 | | 109 | | 70-130 | | | | |
| Chlorobenzene | 10.9 | 1.0 | 0.11 | µg/L | 10.0 | | 109 | | 70-130 | | | | |
| Chlorodibromomethane | 10.9 | 0.50 | 0.22 | µg/L | 10.0 | | 109 | | 70-130 | | | | |
| **Chloroethane** High bias, samples ND - no quals | 13.4 | 2.0 | 0.32 | µg/L | 10.0 | | **134** | * | 70-130 | | | V-20, L-07 | |
| Chloroform | 10.6 | 2.0 | 0.17 | µg/L | 10.0 | | 106 | | 70-130 | | | | |
| Chloromethane High bias, samples ND - no quals | 14.9 | 2.0 | 0.52 | µg/L | 10.0 | | 149 | | 40-160 | | | V-20 | † |
| 2-Chlorotoluene | 10.5 | 1.0 | 0.11 | µg/L | 10.0 | | 105 | | 70-130 | | | | |
| 4-Chlorotoluene | 10.4 | 1.0 | 0.12 | µg/L | 10.0 | | 104 | | 70-130 | | | | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 8.77 | 5.0 | 0.80 | µg/L | 10.0 | | 87.7 | | 70-130 | | | | |
| 1,2-Dibromoethane (EDB) | 10.5 | 0.50 | 0.17 | µg/L | 10.0 | | 105 | | 70-130 | | | | |
| Dibromomethane | 10.6 | 1.0 | 0.35 | µg/L | 10.0 | | 106 | | 70-130 | | | | |
| 1,2-Dichlorobenzene | 10.8 | 1.0 | 0.12 | µg/L | 10.0 | | 108 | | 70-130 | | | | |
| 1,3-Dichlorobenzene | 10.6 | 1.0 | 0.12 | µg/L | 10.0 | | 106 | | 70-130 | | | | |
| 1,4-Dichlorobenzene | 10.5 | 1.0 | 0.13 | µg/L | 10.0 | | 105 | | 70-130 | | | | |
| trans-1,4-Dichloro-2-butene | 8.72 | 2.0 | 1.6 | µg/L | 10.0 | | 87.2 | | 70-130 | | | | |
| Dichlorodifluoromethane (Freon 12) | 9.41 | 2.0 | 0.19 | µg/L | 10.0 | | 94.1 | | 40-160 | | | | † |
| 1,1-Dichloroethane | 10.2 | 1.0 | 0.14 | µg/L | 10.0 | | 102 | | 70-130 | | | | |
| 1,2-Dichloroethane | 11.1 | 1.0 | 0.31 | µg/L | 10.0 | | 111 | | 70-130 | | | | |
| 1,1-Dichloroethylene | 11.6 | 1.0 | 0.14 | µg/L | 10.0 | | 116 | | 70-130 | | | | |
| cis-1,2-Dichloroethylene | 10.2 | 1.0 | 0.15 | µg/L | 10.0 | | 102 | | 70-130 | | | | |
| trans-1,2-Dichloroethylene | 10.2 | 1.0 | 0.17 | µg/L | 10.0 | | 102 | | 70-130 | | | | |
| 1,2-Dichloropropane | 10.4 | 1.0 | 0.18 | µg/L | 10.0 | | 104 | | 70-130 | | | | |
| 1,3-Dichloropropane | 10.4 | 0.50 | 0.13 | µg/L | 10.0 | | 104 | | 70-130 | | | | |
| 2,2-Dichloropropane | 9.16 | 1.0 | 0.33 | µg/L | 10.0 | | 91.6 | | 40-130 | | | | † |
| 1,1-Dichloropropene | 10.4 | 2.0 | 0.15 | µg/L | 10.0 | | 104 | | 70-130 | | | | |
| cis-1,3-Dichloropropene | 10.1 | 0.50 | 0.16 | µg/L | 10.0 | | 101 | | 70-130 | | | | |
| trans-1,3-Dichloropropene | 9.83 | 0.50 | 0.17 | µg/L | 10.0 | | 98.3 | | 70-130 | | | | |
| Diethyl Ether | 10.6 | 2.0 | 0.18 | µg/L | 10.0 | | 106 | | 70-130 | | | | |
| Diisopropyl Ether (DIPE) | 9.57 | 0.50 | 0.13 | µg/L | 10.0 | | 95.7 | | 70-130 | | | | |
| 1,4-Dioxane | 81.3 | 50 | 21 | µg/L | 100 | | 81.3 | | 40-130 | | | | † |
| Ethylbenzene | 10.6 | 1.0 | 0.21 | µg/L | 10.0 | | 106 | | 70-130 | | | | |
| Hexachlorobutadiene | 10.4 | 0.60 | 0.46 | µg/L | 10.0 | | 104 | | 70-130 | | | | |
| 2-Hexanone (MBK) | 77.5 | 10 | 1.1 | µg/L | 100 | | 77.5 | | 70-160 | | | V-05 | † |
| Isopropylbenzene (Cumene) | 11.0 | 1.0 | 0.11 | µg/L | 10.0 | | 110 | | 70-130 | | | | |
| p-Isopropyltoluene (p-Cymene) | 9.92 | 1.0 | 0.097 | µg/L | 10.0 | | 99.2 | | 70-130 | | | | |
| Methyl Acetate | 11.2 | 1.0 | 0.45 | µg/L | 10.0 | | 112 | | 70-130 | | | | |
| Methyl tert-Butyl Ether (MTBE) | 10.7 | 1.0 | 0.17 | µg/L | 10.0 | | 107 | | 70-130 | | | | |
| Methyl Cyclohexane | 10.3 | 1.0 | 0.24 | µg/L | 10.0 | | 103 | | 70-130 | | | | |
| Methylene Chloride | 10.7 | 5.0 | 0.23 | µg/L | 10.0 | | 107 | | 70-130 | | | V-05 | |
| 4-Methyl-2-pentanone (MIBK) | 84.3 | 10 | 1.3 | µg/L | 100 | | 84.3 | | 70-160 | | | | † |
| Naphthalene UJ, LCSL | 6.92 | 2.0 | 0.24 | µg/L | 10.0 | | 69.2 | | 40-130 | | | | † |
| n-Propylbenzene | 10.5 | 1.0 | 0.086 | µg/L | 10.0 | | 105 | | 70-130 | | | | |
| Styrene | 10.9 | 1.0 | 0.11 | µg/L | 10.0 | | 109 | | 70-130 | | | | |
| 1,1,1,2-Tetrachloroethane | 11.2 | 1.0 | 0.18 | µg/L | 10.0 | | 112 | | 70-130 | | | | |
| 1,1,2,2-Tetrachloroethane | 10.2 | 0.50 | 0.13 | µg/L | 10.0 | | 102 | | 70-130 | | | | |
| Tetrachloroethylene | 11.9 | 1.0 | 0.19 | µg/L | 10.0 | | 119 | | 70-130 | | | | |
| Tetrahydrofuran | 8.30 | 10 | 0.49 | µg/L | 10.0 | | 83.0 | | 70-130 | | | J | |
| Toluene | 11.6 | 1.0 | 0.22 | µg/L | 10.0 | | 116 | | 70-130 | | | | |
| 1,2,3-Trichlorobenzene | 8.55 | 5.0 | 0.30 | µg/L | 10.0 | | 85.5 | | 70-130 | | | | |
| 1,2,4-Trichlorobenzene | 8.61 | 1.0 | 0.25 | µg/L | 10.0 | | 86.1 | | 70-130 | | | | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B309448 - SW-846 5030B** | | | | | | | | | | | | |
| **LCS (B309448-BS1)** | | | | | Prepared & Analyzed: 05/27/22 | | | | | | | |
| 1,3,5-Trichlorobenzene | 9.64 | 1.0 | 0.21 | µg/L | 10.0 | | 96.4 | 70-130 | | | | |
| 1,1,1-Trichloroethane | 11.1 | 1.0 | 0.17 | µg/L | 10.0 | | 111 | 70-130 | | | | |
| 1,1,2-Trichloroethane | 10.9 | 1.0 | 0.18 | µg/L | 10.0 | | 109 | 70-130 | | | | |
| Trichloroethylene | 11.4 | 1.0 | 0.19 | µg/L | 10.0 | | 114 | 70-130 | | | | |
| Trichlorofluoromethane (Freon 11) | 11.3 | 2.0 | 0.18 | µg/L | 10.0 | | 113 | 70-130 | | | | |
| 1,2,3-Trichloropropane | 9.32 | 2.0 | 0.28 | µg/L | 10.0 | | 93.2 | 70-130 | | | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 12.0 | 1.0 | 0.23 | µg/L | 10.0 | | 120 | 70-130 | | | | |
| 1,2,4-Trimethylbenzene | 9.79 | 1.0 | 0.20 | µg/L | 10.0 | | 97.9 | 70-130 | | | | |
| 1,3,5-Trimethylbenzene | 10.5 | 1.0 | 0.11 | µg/L | 10.0 | | 105 | 70-130 | | | | |
| Vinyl Chloride | 10.4 | 2.0 | 0.21 | µg/L | 10.0 | | 104 | 40-160 | | | | † |
| m+p Xylene | 21.8 | 2.0 | 0.46 | µg/L | 20.0 | | 109 | 70-130 | | | | |
| o-Xylene | 11.0 | 1.0 | 0.23 | µg/L | 10.0 | | 110 | 70-130 | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | *24.2* | | | µg/L | 25.0 | | 96.9 | 70-130 | | | | |
| Surrogate: Toluene-d8 | *25.3* | | | µg/L | 25.0 | | 101 | 70-130 | | | | |
| Surrogate: 4-Bromofluorobenzene | *24.3* | | | µg/L | 25.0 | | 97.3 | 70-130 | | | | |
| **LCS Dup (B309448-BSD1)** | | | | | Prepared & Analyzed: 05/27/22 | | | 70-130 | | | | |
| Acetone | 86.8 | 50 | 2.0 | µg/L | 100 | | 86.8 | 70-160 | 2.27 | 25 | | † |
| Acrylonitrile | 8.77 | 5.0 | 0.55 | µg/L | 10.0 | | 87.7 | 70-130 | 6.35 | 25 | | |
| tert-Amyl Methyl Ether (TAME) | 9.96 | 0.50 | 0.14 | µg/L | 10.0 | | 99.6 | 70-130 | 4.52 | 25 | | |
| Benzene | 10.4 | 1.0 | 0.20 | µg/L | 10.0 | | 104 | 70-130 | 3.34 | 25 | | |
| Bromobenzene | 10.3 | 1.0 | 0.15 | µg/L | 10.0 | | 103 | 70-130 | 2.46 | 25 | | |
| Bromochloromethane | 10.6 | 1.0 | 0.31 | µg/L | 10.0 | | 106 | 70-130 | 1.33 | 25 | | |
| Bromodichloromethane | 11.1 | 0.50 | 0.18 | µg/L | 10.0 | | 111 | 70-130 | 0.0902 | 25 | | |
| Bromoform | 10.4 | 1.0 | 0.38 | µg/L | 10.0 | | 104 | 70-130 | 4.31 | 25 | | |
| Bromomethane | 11.4 | 2.0 | 1.5 | µg/L | 10.0 | | 114 | 40-160 | 0.437 | 25 | | † |
| 2-Butanone (MEK) | 77.4 | 20 | 1.6 | µg/L | 100 | | 77.4 | 40-160 | 4.88 | 25 | V-05 | † |
| tert-Butyl Alcohol (TBA) | 86.7 | 20 | 4.7 | µg/L | 100 | | 86.7 | 40-160 | 6.53 | 25 | V-05 | † |
| n-Butylbenzene | 9.25 | 1.0 | 0.15 | µg/L | 10.0 | | 92.5 | 70-130 | 1.09 | 25 | | |
| sec-Butylbenzene | 10.2 | 1.0 | 0.11 | µg/L | 10.0 | | 102 | 70-130 | 0.0976 | 25 | | |
| tert-Butylbenzene | 10.7 | 1.0 | 0.13 | µg/L | 10.0 | | 107 | 70-130 | 0.656 | 25 | | |
| tert-Butyl Ethyl Ether (TBEE) | 9.76 | 0.50 | 0.15 | µg/L | 10.0 | | 97.6 | 70-130 | 1.76 | 25 | | |
| Carbon Disulfide | 112 | 5.0 | 1.4 | µg/L | 100 | | 112 | 70-130 | 1.06 | 25 | | |
| Carbon Tetrachloride | 11.0 | 5.0 | 0.16 | µg/L | 10.0 | | 110 | 70-130 | 0.366 | 25 | | |
| Chlorobenzene | 11.1 | 1.0 | 0.11 | µg/L | 10.0 | | 111 | 70-130 | 1.27 | 25 | | |
| Chlorodibromomethane | 11.1 | 0.50 | 0.22 | µg/L | 10.0 | | 111 | 70-130 | 1.55 | 25 | | |
| Chloroethane | 12.9 | 2.0 | 0.32 | µg/L | 10.0 | | 129 | 70-130 | 3.51 | 25 | V-20 | |
| Chloroform | 10.7 | 2.0 | 0.17 | µg/L | 10.0 | | 107 | 70-130 | 1.03 | 25 | | |
| Chloromethane High bias, samples ND - no quals | 14.7 | 2.0 | 0.52 | µg/L | 10.0 | | 147 | 40-160 | 0.811 | 25 | V-20 | † |
| 2-Chlorotoluene | 10.5 | 1.0 | 0.11 | µg/L | 10.0 | | 105 | 70-130 | 0.0954 | 25 | | |
| 4-Chlorotoluene | 10.9 | 1.0 | 0.12 | µg/L | 10.0 | | 109 | 70-130 | 4.80 | 25 | | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 9.07 | 5.0 | 0.80 | µg/L | 10.0 | | 90.7 | 70-130 | 3.36 | 25 | | |
| 1,2-Dibromoethane (EDB) | 10.8 | 0.50 | 0.17 | µg/L | 10.0 | | 108 | 70-130 | 3.01 | 25 | | |
| Dibromomethane | 10.9 | 1.0 | 0.35 | µg/L | 10.0 | | 109 | 70-130 | 2.60 | 25 | | |
| 1,2-Dichlorobenzene | 10.9 | 1.0 | 0.12 | µg/L | 10.0 | | 109 | 70-130 | 1.02 | 25 | | |
| 1,3-Dichlorobenzene | 10.9 | 1.0 | 0.12 | µg/L | 10.0 | | 109 | 70-130 | 2.51 | 25 | | |
| 1,4-Dichlorobenzene | 10.3 | 1.0 | 0.13 | µg/L | 10.0 | | 103 | 70-130 | 1.35 | 25 | | |
| trans-1,4-Dichloro-2-butene | 7.55 | 2.0 | 1.6 | µg/L | 10.0 | | 75.5 | 70-130 | 14.4 | 25 | | |
| Dichlorodifluoromethane (Freon 12) | 9.61 | 2.0 | 0.19 | µg/L | 10.0 | | 96.1 | 40-160 | 2.10 | 25 | | † |

GTD 7/13/2022

# 6 - FORM VI
# INITIAL CALIBRATION DATA SHEET

*SW-846 8260D*

Client: NYDEC Wood - Portland, ME SDG: 22E1903

Project: Irvington Rugs and Cleaners - CO 142890

Calibration: 1900192 Instrument: GCMSVOA3

Calibration Date: 5/16/2019 9:46:05AM

| Compound | Level 01 | | Level 02 | | Level 03 | | Level 04 | | Level 05 | | Level 06 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RF | | RF | | RF | | RF | | RF | | RF |
| 1,3-Dichlorobenzene | 0.4 | 1.095641 | 0.5 | 1.210676 | 1 | 1.209648 | 2 | 1.184127 | 5 | 1.150063 | 10 | 1.15524 |
| 1,4-Dichlorobenzene | 0.4 | 1.312528 | 0.5 | 1.265305 | 1 | 1.269293 | 2 | 1.295737 | 5 | 1.237276 | 10 | 1.17488 |
| trans-1,4-Dichloro-2-butene | | | 0.5 | 0.1838875 | 1 | 0.2229195 | 2 | 0.1983061 | 5 | 0.2157493 | 10 | 0.2080091 |
| Dichlorodifluoromethane (Freon | 0.4 | 0.4865607 | 0.5 | 0.5506666 | 1 | 0.5581535 | 2 | 0.5360508 | 5 | 0.5017599 | 10 | 0.447308 |
| 1,1-Dichloroethane | 0.4 | 0.8717747 | 0.5 | 0.8422404 | 1 | 0.8061384 | 2 | 0.8299679 | 5 | 0.780426 | 10 | 0.7771888 |
| 1,2-Dichloroethane | 0.4 | 0.400164 | 0.5 | 0.4258389 | 1 | 0.4095024 | 2 | 0.428944 | 5 | 0.4048162 | 10 | 0.3833373 |
| 1,1-Dichloroethylene | 0.4 | 0.5960729 | 0.5 | 0.6050534 | 1 | 0.6017943 | 2 | 0.6310017 | 5 | 0.5943076 | 10 | 0.5418049 |
| cis-1,2-Dichloroethylene | 0.4 | 0.6777268 | 0.5 | 0.7040073 | 1 | 0.7278471 | 2 | 0.7411197 | 5 | 0.6903263 | 10 | 0.6698028 |
| trans-1,2-Dichloroethylene | 0.4 | 0.6868528 | 0.5 | 0.635646 | 1 | 0.6004832 | 2 | 0.6214887 | 5 | 0.5685126 | 10 | 0.5681676 |
| Dichlorofluoromethane (Freon 2 | 0.4 | 0.8275855 | 0.5 | 0.8611247 | 1 | 0.8430365 | 2 | 0.8321218 | 5 | 0.7658844 | 10 | 0.7355818 |
| 1,2-Dichloropropane | 0.4 | 0.2926337 | 0.5 | 0.328011 | 1 | 0.3241163 | 2 | 0.3173614 | 5 | 0.3144341 | 10 | 0.3120607 |
| 1,3-Dichloropropane | 0.4 | 0.4600782 | 0.5 | 0.5351759 | 1 | 0.5054207 | 2 | 0.5049797 | 5 | 0.5133373 | 10 | 0.4885369 |
| 2,2-Dichloropropane | 0.4 | 0.6854118 | 0.5 | 0.6771915 | 1 | 0.6332607 | 2 | 0.6169117 | 5 | 0.5642378 | 10 | 0.5429915 |
| 1,1-Dichloropropene | 0.4 | 0.5538051 | 0.5 | 0.5967443 | 1 | 0.5626487 | 2 | 0.5605514 | 5 | 0.5640916 | 10 | 0.518418 |
| cis-1,3-Dichloropropene | 0.4 | 0.4610242 | 0.5 | 0.4513592 | 1 | 0.4546404 | 2 | 0.4948575 | 5 | 0.4847918 | 10 | 0.4669137 |
| trans-1,3-Dichloropropene | 0.4 | 0.3657921 | 0.5 | 0.4100764 | 1 | 0.4359583 | 2 | 0.4363273 | 5 | 0.4230034 | 10 | 0.4162324 |
| Diethyl Ether | 0.4 | 0.4519779 | 0.5 | 0.3924161 | 1 | 0.3684188 | 2 | 0.3728932 | 5 | 0.3619701 | 10 | 0.3490138 |
| Difluorochloromethane (Freon 2 | 0.4 | 0.6224903 | 0.5 | 0.6118518 | 1 | 0.6250195 | 2 | 0.615745 | 5 | 0.5901424 | 10 | 0.5398149 |
| Diisopropyl Ether (DIPE) | 0.4 | 1.803109 | 0.5 | 1.732825 | 1 | 1.897535 | 2 | 1.760271 | 5 | 1.669476 | 10 | 1.663608 |
| 1,4-Dioxane | | | | | | | | | 50 | 3.743436E-03 | 100 | 4.111881E-03 |
| Ethanol | | | | | | | 20 | 1.208874E-02 | 50 | 1.012435E-02 | 100 | 1.012883E-02 |
| Ethyl Acetate | | | 0.5 | 0.9072025 | 1 | 0.6349464 | 2 | 0.6591819 | 5 | 0.6711445 | 10 | 0.6097199 |
| Ethylbenzene | 0.4 | 2.65737 | 0.5 | 2.587347 | 1 | 2.531944 | 2 | 2.624897 | 5 | 2.458215 | 10 | 2.418872 |
| Hexachlorobutadiene | 0.4 | 0.2472115 | 0.5 | 0.2356838 | 1 | 0.2948255 | 2 | 0.3274643 | 5 | 0.2960404 | 10 | 0.2861251 |
| 2-Hexanone (MBK) | 4 | 0.3178292 | 5 | 0.333015 | 10 | 0.3396638 | 20 | 0.3138663 | 50 | 0.3177247 | 100 | 0.3087019 |
| Iodomethane | 4 | 0.4074046 | 5 | 0.3608793 | 10 | 0.4438257 | 20 | 0.438596 | 50 | 0.4517629 | 100 | 0.4730665 |
| Isopropylbenzene (Cumene) | 0.4 | 2.401147 | 0.5 | 2.355251 | 1 | 2.371533 | 2 | 2.338783 | 5 | 2.199191 | 10 | 2.190236 |
| p-Isopropyltoluene (p-Cymene) | 0.4 | 2.025156 | 0.5 | 2.013978 | 1 | 1.946319 | 2 | 1.942685 | 5 | 1.923026 | 10 | 1.857638 |
| Methyl Acetate | | | 0.5 | 0.6465989 | 1 | 0.7686785 | 2 | 0.5464613 | 5 | 0.5308797 | 10 | 0.5410928 |
| Methyl tert-Butyl Ether (MTBE) | 0.4 | 1.306461 | 0.5 | 1.441629 | 1 | 1.374968 | 2 | 1.374904 | 5 | 1.256464 | 10 | 1.233224 |
| Methyl Cyclohexane | 0.4 | 0.3623234 | 0.5 | 0.4123281 | 1 | 0.3748966 | 2 | 0.3795237 | 5 | 0.3493151 | 10 | 0.3219938 |

GTD

7/13/202

# 6 - FORM VI
# INITIAL CALIBRATION DATA SHEET (Continued)

*SW-846 8260D*

Client: NYDEC Wood - Portland, ME SDG: 22E1903

Project: Irvington Rugs and Cleaners - CO 142890

Calibration: 1900192 Instrument: GCMSVOA3

Calibration Date: 5/16/2019 9:46:05AM

| Compound | Level 07 | | Level 08 | | Level 09 | | Level 10 | | Level 11 | | Level 12 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RF | | RF | | RF | | RF | | RF | | RF |
| 1,3-Dichlorobenzene | 20 | 1.22026 | 50 | 1.261229 | 100 | 1.147698 | 200 | 1.216093 | | | | |
| 1,4-Dichlorobenzene | 20 | 1.267958 | 50 | 1.298011 | 100 | 1.182542 | 200 | 1.260015 | | | | |
| trans-1,4-Dichloro-2-butene | 20 | 0.2297755 | 50 | 0.2395583 | 100 | 0.2310871 | 200 | 0.2668073 | | | | |
| Dichlorodifluoromethane (Freon | 20 | 0.4751828 | 50 | 0.4698337 | 100 | 0.4324328 | 200 | 0.4325715 | | | | |
| 1,1-Dichloroethane | 20 | 0.797232 | 50 | 0.8061549 | 100 | 0.7473728 | 200 | 0.7920684 | | | | |
| 1,2-Dichloroethane | 20 | 0.4096842 | 50 | 0.4193351 | 100 | 0.3841411 | 200 | 0.4200285 | | | | |
| 1,1-Dichloroethylene | 20 | 0.567796 | 50 | 0.5829587 | 100 | 0.5346802 | 200 | 0.5507606 | | | | |
| cis-1,2-Dichloroethylene | 20 | 0.700361 | 50 | 0.7149265 | 100 | 0.6647751 | 200 | 0.7127344 | | | | |
| trans-1,2-Dichloroethylene | 20 | 0.5897868 | 50 | 0.6000535 | 100 | 0.5529189 | 200 | 0.5890457 | | | | |
| Dichlorofluoromethane (Freon 2 | 20 | 0.7727157 | 50 | 0.7842405 | 100 | 0.715346 | 200 | 0.7468919 | | | | |
| 1,2-Dichloropropane | 20 | 0.3065822 | 50 | 0.3316003 | 100 | 0.3036002 | 200 | 0.3320039 | | | | |
| 1,3-Dichloropropane | 20 | 0.5213865 | 50 | 0.5314715 | 100 | 0.4862869 | 200 | 0.5409326 | | | | |
| 2,2-Dichloropropane | 20 | 0.5461334 | 50 | 0.6058969 | 100 | 0.5585877 | 200 | 0.6001095 | | | | |
| 1,1-Dichloropropene | 20 | 0.5475739 | 50 | 0.5560321 | 100 | 0.5165807 | 200 | 0.5513152 | | | | |
| cis-1,3-Dichloropropene | 20 | 0.4822948 | 50 | 0.5140672 | 100 | 0.4807701 | 200 | 0.5323406 | | | | |
| trans-1,3-Dichloropropene | 20 | 0.4462905 | 50 | 0.4796145 | 100 | 0.4448148 | 200 | 0.5018782 | | | | |
| Diethyl Ether | 20 | 0.3589924 | 50 | 0.3615247 | 100 | 0.333427 | 200 | 0.3516705 | | | | |
| Difluorochloromethane (Freon 2 | 20 | 0.590653 | 50 | 0.578874 | 100 | 0.5302223 | 200 | 0.5411129 | | | | |
| Diisopropyl Ether (DIPE) | 20 | 1.727485 | 50 | 1.761408 | 100 | 1.637946 | 200 | 1.75854 | | | | |
| 1,4-Dioxane | 200 | 5.179833E-03 | 500 | 4.944318E-03 | 1000 | 4.650206E-03 | 2000 | 5.181314E-03 | | | | |
| Ethanol | 200 | 1.035083E-02 | 500 | 9.606578E-03 | 1000 | 9.977734E-03 | 2000 | 9.295583E-03 | | | | |
| Ethyl Acetate | 20 | 0.6899218 | 50 | 0.658084 | 100 | 0.6236325 | 200 | 0.6893449 | | | | |
| Ethylbenzene | 20 | 2.567705 | 50 | 2.635251 | 100 | 2.391798 | 200 | 2.585488 | | | | |
| Hexachlorobutadiene | 20 | 0.3113776 | 50 | 0.3229757 | 100 | 0.2976984 | 200 | 0.3087296 | | | | |
| 2-Hexanone (MBK) | 200 | 0.3590803 | 500 | 0.3453809 | 1000 | 0.3343056 | 2000 | 0.3745308 | | | | |
| Iodomethane | 200 | 0.5205412 | 500 | 0.5514077 | 1000 | 0.526562 | 2000 | 0.5775008 | | | | |
| Isopropylbenzene (Cumene) | 20 | 2.303206 | 50 | 2.40029 | 100 | 2.168419 | 200 | 2.331284 | | | | |
| p-Isopropyltoluene (p-Cymene) | 20 | 2.009798 | 50 | 2.103029 | 100 | 1.877725 | 200 | 1.971134 | | | | |
| Methyl Acetate | 20 | 0.5792473 | 50 | 0.5543198 | 100 | 0.5195348 | 200 | 0.5584516 | | | | |
| Methyl tert-Butyl Ether (MTBE) | 20 | 1.294862 | 50 | 1.305762 | 100 | 1.203826 | 200 | 1.313095 | | | | |
| Methyl Cyclohexane | 20 | 0.3402204 | 50 | 0.3692778 | 100 | 0.3413521 | 200 | 0.360888 | | | | |

GTD
7/13/2022

# 6 - FORM VI
# INITIAL CALIBRATION DATA SHEET (Continued)

## SW-846 8260D

| | | | |
|---|---|---|---|
| Laboratory: | Con-Test, a Pace Analytical Laboratory | Work Order: | 22E1903 |
| Client: | NYDEC_Wood - Portland, ME | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Calibration: | 1900192 | Instrument: | GCMSVOA3 |
| | | Calibration Date: | 5/16/2019 9:46:05AM |

| COMPOUND | Mean RF | RF RSD | Linear $r^2$ | Quad COD | LIMIT | Q |
|---|---|---|---|---|---|---|
| 1,3-Dichlorobenzene | 1.185068 | 4.1 | | | 20 | |
| 1,4-Dichlorobenzene | 1.256354 | 3.7 | | | 20 | |
| trans-1,4-Dichloro-2-butene | 0.2217889 | 10.9 | | | 20 | |
| Dichlorodifluoromethane (Freon 12) | 0.489052 | 9.6 | | | 20 | |
| 1,1-Dichloroethane | 0.8050564 | 4.4 | | | 20 | |
| 1,2-Dichloroethane | 0.4085792 | 3.9 | | | 20 | |
| 1,1-Dichloroethylene | 0.580623 | 5.4 | | | 20 | |
| cis-1,2-Dichloroethylene | 0.7003627 ✓ | 3.6 ✓ | | | 20 | |
| trans-1,2-Dichloroethylene | 0.6012956 | 6.5 | | | 20 | |
| Dichlorofluoromethane (Freon 21) | 0.7884529 | 6.3 | | | 20 | |
| 1,2-Dichloropropane | 0.3162404 | 4.1 | | | 20 | |
| 1,3-Dichloropropane | 0.5087606 | 5.0 | | | 20 | |
| 2,2-Dichloropropane | 0.6030733 | 8.5 | | | 20 | |
| 1,1-Dichloropropene | 0.5527761 | 4.2 | | | 20 | |
| cis-1,3-Dichloropropene | 0.4823059 | 5.4 | | | 20 | |
| trans-1,3-Dichloropropene | 0.4359988 | 8.6 | | GTD 7/13/2022 | 20 | |
| Diethyl Ether | 0.3702305 | 8.8 | | | 20 | |
| Difluorochloromethane (Freon 22) | 0.5845926 | 6.2 | | | 20 | |
| Diisopropyl Ether (DIPE) | 1.74122 | 4.3 | | | 20 | |
| 1,4-Dioxane | 4.635165E-03 | 12.8 | | | 20 | |
| Ethanol | 1.022466E-02 | 8.8 | | | 20 | |
| Ethyl Acetate | 0.6825754 | 13.0 | | | 20 | |
| Ethylbenzene | 2.545889 | 3.7 | | | 20 | |
| Hexachlorobutadiene | 0.2928132 | 10.3 | | | 20 | |
| 2-Hexanone (MBK) | 0.3344099 | 6.3 | | | 20 | |
| Iodomethane | 0.4751547 | 14.3 | | | 20 | |
| Isopropylbenzene (Cumene) | 2.305934 | 3.8 | | | 20 | |
| p-Isopropyltoluene (p-Cymene) | 1.967049 | 3.7 | | | 20 | |
| Methyl Acetate | 0.5828072 | 13.5 | | | 20 | |
| Methyl tert-Butyl Ether (MTBE) | 1.31052 | 5.5 | | | 20 | |
| Methyl Cyclohexane | 0.3612119 | 7.0 | | | 20 | |

Data Path : C:\msdchem\1\data\C051619\
Data File : C1913612.D
Acq On : 16 May 2019 11:58 am
Operator :
Sample : 8260STD 5.0PPB 1905273 Inst : GCMSVOA3
Misc :
ALS Vial : 12 Sample Multiplier: 1

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Quant Time: May 16 14:42:02 2019
Quant Method : C:\msdchem\1\methods\C053018.M
Quant Title : 8260 WATER 5MLS VOAMS 5973 #3
QLast Update : Wed Mar 13 07:34:04 2019
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | | Dev(Min) |
|---|---|---|---|---|---|---|---|
| **Internal Standards** | | | | | | | |
| 1) PENTAFLUOROBENZENE - ISTD | 4.196 | 168 | 164218 | 30.00 | UG/L | | 0.00 |
| 48) 1,4-DIFLUOROBENZENE - ... | 4.919 | 114 | 249076 | 30.00 | UG/L | | 0.00 |
| 70) CHLOROBENZENE-D5 ISTD | 7.755 | 82 | 125618 | 30.00 | UG/L | | 0.00 |
| 89) 1,4-DICHLOROBENZENE-D4... | 10.050 | 152 | 118950 | 30.00 | UG/L | # | 0.00 |
| **System Monitoring Compounds** | | | | | | | |
| 2) 1,2-DICHLOROETHANE-D4 SS | 4.470 | 65 | 79096 | 18.78 | UG/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 75.12% | | | | |
| 49) TOLUENE SS | 6.355 | 98 | 246832 | 23.87 | UG/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 95.48% | | | | |
| 71) 4-BROMOFLUOROBENZENE SS | 8.912 | 95 | 91353 | 23.24 | UG/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 92.96% | | | | |
| **Target Compounds** | | | | | | | Qvalue |
| 3) DICHLORODIFLUOROMETHANE | 1.087 | 85 | 13733 | 4.10 | UG/L | | 99 |
| 4) DIFLUOROCHLOROMETHANE | 1.093 | 51 | 16152 | 3.98 | UG/L | # | 100 |
| 5) CHLOROMETHANE | 1.196 | 50 | 18156 | 4.64 | UG/L | # | 21 |
| 6) VINYL CHLORIDE | 1.260 | 62 | 14175 | 4.44 | UG/L | | 97 |
| 7) BROMOMETHANE | 1.452 | 94 | 8776 | 5.73 | UG/L | | 86 |
| 8) CHLOROETHANE | 1.516 | 64 | 8177 | 4.14 | UG/L | | 100 |
| 9) FLUORODICHLOROMETHANE | 1.639 | 67 | 20962 | 4.33 | UG/L | | 99 |
| 10) TRICHLOROFLUOROMETHANE | 1.675 | 101 | 15723 | 3.79 | UG/L | | 99 |
| 11) ETHANOL | 1.801 | 45 | 2771 | 28.55 | UG/L | # | 83 |
| 12) DI ETHYL ETHER | 1.868 | 59 | 9907 | 4.04 | UG/L | | 94 |
| 13) ACROLEIN | 1.957 | 56 | 33059 | 48.83 | UG/L | | 97 |
| 14) ACETONE | 2.071 | 43 | 48525 | 38.15 | UG/L | | 97 |
| 15) 1,1-DICHLOROETHENE | 2.027 | 61 | 16266 | 3.98 | UG/L | | 98 |
| 16) 1,1,2-TRICL-1,2,2-TRIF... | 2.024 | 101 | 8909 | 4.59 | UG/L | | 81 |
| 17) IODOMETHANE | 2.141 | 142 | 123646 | 47.12 | UG/L | | 100 |
| 20) METHYL ACETATE | 2.320 | 43 | 14530 | 2.18 | UG/L | | 99 |
| 21) T-BUTYL ALCOHOL | 2.515 | 59 | 18333 | 38.65 | UG/L | # | 97 |
| 22) ACRYLONITRILE | 2.621 | 53 | 6148 | 4.04 | UG/L | | 99 |
| 23) METHYLENE CHLORIDE | 2.398 | 49 | 16630 | 3.74 | UG/L | | 98 |
| 24) CARBON DISULFIDE | 2.191 | 76 | 307845 | 49.33 | UG/L | | 99 |
| 25) METHYL TERT-BUTYL ETHE... | 2.646 | 73 | 34389 | 4.23 | UG/L | | 99 |
| 26) TRANS 1,2-DICHLOROETHENE | 2.635 | 61 | 15560 | 3.98 | UG/L | | 95 |
| 27) 1,1-DICHLOROETHANE | 3.047 | 63 | 21360 | 4.24 | UG/L | | 96 |
| 28) VINYL ACETATE | 3.114 | 43 | 422460 | 53.79 | UG/L | | 99 |
| 29) DI ISOPROYL ETHER | 3.131 | 45 | 45693 | 4.30 | UG/L | | 99 |
| 31) 2-BUTANONE | 3.680 | 43 | 90245 | 43.58 | UG/L | | 100 |
| 32) T-BUTYL ETHYL ETHER | 3.507 | 59 | 38227 | 3.88 | UG/L | | 97 |
| 33) CIS-1,2-DICHLOROETHENE | 3.647 | 61 | 18894 | 3.85 | UG/L | | 93 |
| 34) 2,2-DICHLOROPROPANE | 3.641 | 77 | 15443 | 4.39 | UG/L | | 92 |
| 35) ETHYL ACETATE | 3.750 | 43 | 18369 | 8.74 | UG/L | # | 92 |
| 38) BROMOCHLOROMETHANE | 3.884 | 49 | 11586 | 4.58 | UG/L | | 93 |
| 39) TETRAHYDROFURAN | 3.945 | 42 | 5556 | 4.69 | UG/L | | 100 |
| 40) CHLOROFORM | 3.976 | 83 | 20387 | 4.31 | UG/L | | 96 |
| 41) 1,1,1-TRICHLOROETHANE | 4.143 | 97 | 16165 | 3.93 | UG/L | | 95 |
| 42) CYCLOHEXANE | 4.193 | 56 | 22290 | 4.11 | UG/L | | 94 |
| 43) CARBON TETRACHLORIDE | 4.313 | 117 | 13583 | 3.89 | UG/L | | 99 |
| 44) 1,1-DICHLOROPROPENE | 4.313 | 75 | 15439 | 4.38 | UG/L | | 94 |
| 45) BENZENE | 4.523 | 78 | 45771 | 4.48 | UG/L | | 98 |
| 47) T-AMYLMETHYL ETHER | 4.651 | 73 | 34053 | 4.47 | UG/L | | 97 |
| 50) 1,2-DICHLOROETHANE | 4.550 | 62 | 16805 | 3.48 | UG/L | # | 84 |
| 51) TRICHLOROETHENE | 5.167 | 95 | 11248 | 4.60 | UG/L | | 91 |
| 52) METHYLCYCLOHEXANE | 5.340 | 83 | 14501 | 4.70 | UG/L | | 97 |
| 53) 1,2-DICHLOROPROPANE | 5.384 | 63 | 13053 | 4.82 | UG/L | # | 97 |

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Quantitation Report (QT Reviewed)

39

Data Path : C:\msdchem\1\data\C052722\
Data File : C22V14757.D
Acq On : 28 May 2022 5:15 am
Operator :
Sample : 22E1903-01 Inst : GCMSVOA3
Misc :
ALS Vial : 57 Sample Multiplier: 1

Quant Time: May 31 09:37:42 2022
Quant Method : C:\msdchem\1\methods\C051619.M
Quant Title : 8260 WATER 5MLS VOAMS 5973 #3
QLast Update : Fri May 06 09:16:20 2022
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | | Dev(Min) |
|---|---|---|---|---|---|---|---|
| Internal Standards | | | | | | | |
| 1) PENTAFLUOROBENZENE - ISTD | 4.193 | 168 | 128727 | 30.00 | UG/L | | 0.00 |
| 48) 1,4-DIFLUOROBENZENE - ... | 4.916 | 114 | 189496 | 30.00 | UG/L | | 0.00 |
| 70) CHLOROBENZENE-D5 ISTD | 7.752 | 82 | 94232 | 30.00 | UG/L | | 0.00 |
| 89) 1,4-DICHLOROBENZENE-D4... | 10.047 | 152 | 87053 | 30.00 | UG/L | # | 0.00 |
| System Monitoring Compounds | | | | | | | |
| 2) 1,2-DICHLOROETHANE-D4 SS | 4.467 | 65 | 59950 | 24.76 | UG/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 99.04% | | | | |
| 49) TOLUENE SS | 6.352 | 98 | 188629 | 24.96 | UG/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 99.84% | | | | |
| 71) 4-BROMOFLUOROBENZENE SS | 8.909 | 95 | 65937 | 23.59 | UG/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 94.36% | | | | |
| Target Compounds | | | | | | | Qvalue |
| 14) ACETONE | 2.069 | 43 | 2541 | 3.15 | UG/L | # | 47 |
| 26) TRANS 1,2-DICHLOROETHENE | 2.635 | 61 | 1807 | 0.70 | UG/L | | 90 |
| 33) CIS-1,2-DICHLOROETHENE | 3.647 | 61 | 21450 | 7.14 | UG/L | ✓ | 98 |
| 51) TRICHLOROETHENE | 5.164 | 95 | 10315 | 6.19 | UG/L | | 95 |
| 66) TETRACHLOROETHENE | 6.943 | 166 | 12677 | 7.48 | UG/L | | 98 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

GTD 7/13/2022



7/7/1/13/

DUSR Calculations Sheet

**Sample ID:** 360175-DP08011
**TC:** cis-1,2-dichloroethene
**ICAL Level:**
**Val File Result for TC:** 7.1 ug/L

## Ical Calc

| | | | |
|---|---|---|---|
| **Area TC** | 18894 | **1** | 0.677727 |
| **Area IS** | 164218 | **2** | 0.704007 |
| | | **3** | 0.727847 |
| **Conc TC** | 5 | **4** | 0.741120 |
| **Conc IS** | 30 | **5** | 0.690326 |
| | | **6** | 0.669803 |
| **RRF =** | 0.690326 | **7** | 0.700361 |
| | | **8** | 0.714927 |
| | | **9** | 0.664775 |
| | | **10** | 0.712734 |
| | | **Avg RRF =** | 0.700363 |
| | | **Std Dev =** | 0.024963 |
| | | **%RSD =** | 3.56433 |

## Sample Calc

| | | | |
|---|---|---|---|
| **Area TC** | 21450 | **DF** | 1 |
| **Area IS** | 128727 | | |
| | | | |
| **Conc IS** | 30 | | |
| **Avg RRF** | 0.700363 | | |
| | | | |
| **Conc TC =** | 7.137661 µg/L | Conc TC = | 7.137661 |

Notes:
Green = matched reported value
Red = did not match reported value

GTD 7/13/2022

# VOCs

**NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD**
**Project:** Irvington Rugs June 2022
**Method:** 8260D
**Laboratory:** Con-test **SDG(s):** 22F1625
**Date:** 8/19/2022
**Reviewer:** Gabrielle Davis

**Review Level** [X] NYSDEC DUSR [ ] USEPA Region II Guideline

1. ☑ **Case Narrative Review and COC/Data Package Completeness** COMMENTS
   Were problems noted? Yes
   Are Field Sample IDs and Locations assigned correctly? YES NO (circle one)
   Were all the samples on the COC analyzed for the requested analyses? YES NO (circle one)

2. ☑ **Holding time and Sample Collection**
   All samples were analyzed within the 14 day holding time. YES NO (circle one)

3. ☑ **QC Blanks**
   Are method blanks free of contamination? YES NO (circle one)

   Are Trip blanks free of contamination? YES NO (circle one) See attached - subset U @ RL, BL2

   Are Rinse blanks free of contamination? YES NO NA (circle one)

4. ☑ **Instrument Tuning – Data Package Narrative Review**
   Did the laboratory narrative identify any results that were not within method criteria? YES NO (circle one)
   If yes, use professional judgment to evaluate data and qualify results if needed

5. ☑ **Instrument Calibration – Data Package Narrative Review**
   Did the laboratory narrative identify compounds that were not within criteria in the initial and/or continuing calibration standards? YES NO (circle one)

   Initial Calibration %RSD = 20% **(30% for 1,1-DCE, chloroform, 1,2-DCP, toluene, ethylbenzene, VC)**
   Initial Avg RRF and Continuing RRF should be ≥ 0.05 and 0.10 for Chloromethane, 1,1-Dichloroethane, Bromoform and 0.30 for Chlorobenzene and 1,1,2,2-Tetrachloroethane

   Continuing Calibration %D = 20% See attached - subset UJ, CCV%D

   Did the laboratory qualify results based on initial or continuing calibration exceedances? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed

6. ☑ **Internal Standards – Data Package Narrative Review**
   (Area Limits = -50% to +100%, RTs within 30 seconds of daily CCAL standard (or ICAL mid-point if samples follow ICAL)
   Did the laboratory narrative identify any sample internal standards that were not within criteria? YES NO (circle one)

   Did the laboratory qualify results based on internal standard exceedances? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed

7. ☑ **Surrogate Recovery** - Region II limits (water 80-120%, soil 70-130%)

   Were all results within Region II limits? YES NO (circle one)

8. ☑ **Matrix Spike** - Region II limits (water and soil 70-130%, water RPD 20, soil RPD 35)

   Were MS/MSDs submitted/analyzed? YES NO

   Were all results within the Region II limits? YES NO NA (circle one) GTD 8/19/2022

9. ☑ **Duplicates** - Region II Limits (water RPD 50, soil RPD 100)

Were Field Duplicates submitted/analyzed? YES NO All ND or J - no evaluation

Were all results within Region II limits? (soil RPD<100, water RPD<50) YES NO NA

10. ☑ **Laboratory Control Sample Results** - Region II (Water and soil 70-130%)

Were all results were within Region II control limits? YES NO (circle one) See attached - subset UJ, LCSL

11. ☑ **Reporting Limits:** Were samples analyzed at a dilution? YES NO (circle one)

12. ☑ **Raw Data Review and Calculation Checks**

See attached for calculation check

13. ☑ **Electronic Data Review and Edits**

Does the EDD match the Form Is? YES NO (circle one)

14. ☑ **Tables and TIC Review**

**Table 1** (Samples and Analytical Methods)
**Table 2** (Analytical Results)
**Table 3** (Qualification Actions)
Were all tables produced and reviewed? YES NO (circle one)

**Table 4** (TICs) Did lab report TICs? YES NO (circle one)

GTD 8/19/2022

con-test®
A Pace Analytical® Laboratory

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

NYDEC_Wood - Portland, ME
511 Congress Street, Suite 200
Portland, ME 04101
ATTN: Chuck R. Staples

REPORT DATE: 7/11/2022

PURCHASE ORDER NUMBER: 142890

PROJECT NUMBER: 3616216144.02

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 22F1625

The results of analyses performed on the following samples submitted to Con-Test, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: Irvington, NY

| FIELD SAMPLE # | LAB ID: | MATRIX | SAMPLE DESCRIPTION | TEST | SUB LAB |
|---|---|---|---|---|---|
| 360175-MW0030020 ✓ | 22F1625-01 | Ground Water | | SW-846 8260D | |
| 360175-MW0030020 Dup ✓ | 22F1625-02 | Ground Water | | SW-846 8260D | |
| 360175-TB624 ✓ | 22F1625-03 | Ground Water | | SW-846 8260D | |

GTD 8/19/2022

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

**CASE NARRATIVE SUMMARY**

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

**SW-846 8260D**

**Qualifications:**

**V-05**

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

**Analyte & Samples(s) Qualified:**

**1,4-Dioxane**
22F1625-01[360175-MW0030020], 22F1625-02[360175-MW0030020 Dup], 22F1625-03[360175-TB624], B311672-BLK1, B311672-BS1, B311672-BSD1, S073330-CCV1

**2-Butanone (MEK)**
22F1625-01[360175-MW0030020], 22F1625-02[360175-MW0030020 Dup], 22F1625-03[360175-TB624], B311672-BLK1, B311672-BS1, B311672-BSD1, S073330-CCV1

**2-Hexanone (MBK)**
22F1625-01[360175-MW0030020], 22F1625-02[360175-MW0030020 Dup], 22F1625-03[360175-TB624], B311672-BLK1, B311672-BS1, B311672-BSD1, S073330-CCV1

**Acetone** UJ, CCV%D
22F1625-01[360175-MW0030020], 22F1625-02[360175-MW0030020 Dup], 22F1625-03[360175-TB624], B311672-BLK1, B311672-BS1, B311672-BSD1, S073330-CCV1

**Acrylonitrile**
22F1625-01[360175-MW0030020], 22F1625-02[360175-MW0030020 Dup], 22F1625-03[360175-TB624], B311672-BLK1, B311672-BS1, B311672-BSD1, S073330-CCV1

**Naphthalene**
22F1625-01[360175-MW0030020], 22F1625-02[360175-MW0030020 Dup], 22F1625-03[360175-TB624], B311672-BLK1, B311672-BS1, B311672-BSD1, S073330-CCV1

**tert-Butyl Alcohol (TBA)**
22F1625-01[360175-MW0030020], 22F1625-02[360175-MW0030020 Dup], 22F1625-03[360175-TB624], B311672-BLK1, B311672-BS1, B311672-BSD1, S073330-CCV1

GTD 8/19/2022

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

# 1 - FORM I
# ANALYSIS DATA SHEET

360175-TB624

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Con-Test, a Pace Analytical Labora | | | Work Order: | 22F1625 |
| Client: | NYDEC_Wood - Portland, ME | | | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Matrix: | Ground Water | Laboratory ID: | 22F1625-03 | File ID: | C22V17816.D |
| Sampled: | 06/24/22 09:00 | Prepared: | 06/27/22 09:14 | Analyzed: | 06/27/22 12:52 |
| Solids: | | Preparation: | SW-846 5030B | Dilution: | 1 |
| Initial/Final: | 5 mL / 5 mL | | | | |
| Batch: | B311672 | Sequence: | S073330 | Calibration: | 1900192 | Instrument: | GCMSVOA3 |

| CAS NO. | COMPOUND | CONC. (µg/L) | MDL | RL | Q |
|---|---|---|---|---|---|
| 110-57-6 | trans-1,4-Dichloro-2-butene | | 1.6 | 2.0 | |
| 75-71-8 | Dichlorodifluoromethane (Freon 12) | | 0.19 | 2.0 | |
| 75-34-3 | 1,1-Dichloroethane | | 0.14 | 1.0 | |
| 107-06-2 | 1,2-Dichloroethane | | 0.31 | 1.0 | |
| 75-35-4 | 1,1-Dichloroethylene | | 0.14 | 1.0 | |
| 156-59-2 | cis-1,2-Dichloroethylene | | 0.15 | 1.0 | |
| 156-60-5 | trans-1,2-Dichloroethylene | | 0.17 | 1.0 | |
| 78-87-5 | 1,2-Dichloropropane | | 0.18 | 1.0 | |
| 142-28-9 | 1,3-Dichloropropane | | 0.13 | 0.50 | |
| 594-20-7 | 2,2-Dichloropropane | | 0.33 | 1.0 | |
| 563-58-6 | 1,1-Dichloropropene | | 0.15 | 2.0 | |
| 10061-01-5 | cis-1,3-Dichloropropene | | 0.16 | 0.50 | |
| 10061-02-6 | trans-1,3-Dichloropropene | | 0.17 | 0.50 | |
| 60-29-7 | Diethyl Ether | | 0.18 | 2.0 | |
| 108-20-3 | Diisopropyl Ether (DIPE) | | 0.13 | 0.50 | |
| 123-91-1 | 1,4-Dioxane | | 21 | 50 | V-05 |
| 100-41-4 | Ethylbenzene | | 0.21 | 1.0 | |
| 87-68-3 | Hexachlorobutadiene | | 0.46 | 0.60 | |
| 591-78-6 | 2-Hexanone (MBK) | | 1.1 | 10 | V-05 |
| 98-82-8 | Isopropylbenzene (Cumene) | | 0.11 | 1.0 | |
| 99-87-6 | p-Isopropyltoluene (p-Cymene) | | 0.097 | 1.0 | |
| 79-20-9 | Methyl Acetate | | 0.45 | 1.0 | |
| 1634-04-4 | Methyl tert-Butyl Ether (MTBE) | | 0.17 | 1.0 | |
| 108-87-2 | Methyl Cyclohexane | | 0.24 | 1.0 | |
| 75-09-2 | Methylene Chloride Samples 1 and 2 U @ RL, BL2 | 0.29 | 0.23 | 5.0 | J |
| 108-10-1 | 4-Methyl-2-pentanone (MIBK) | | 1.3 | 10 | |
| 91-20-3 | Naphthalene | | 0.24 | 2.0 | V-05 |
| 103-65-1 | n-Propylbenzene GTD 8/19/2022 | | 0.086 | 1.0 | |
| 100-42-5 | Styrene | | 0.11 | 1.0 | |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 0.18 | 1.0 | |

# 3 - FORM III

## LCS / LCS DUPLICATE RECOVERY

SW-846 8260D

| | | | |
|---|---|---|---|
| Laboratory: | Con-Test, a Pace Analytical Laboratory | Work Order: | 22F1625 |
| Client: | NYDEC_Wood - Portland, ME | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Matrix: | Water | Preparation: | SW-846 5030B |
| Batch: | B311672 | Laboratory ID: | B311672-BS1 |
| Column: | | Initial/Final: | 5 mL / 5 mL |

70-130

| ANALYTE | SPIKE ADDED (µg/L) | LCS CONCENTRATION (µg/L) | LCS % REC. | QC LIMITS REC. |
|---|---|---|---|---|
| Acetone | 100 | 75.6 | 75.6 | 70 - 160 |
| Acrylonitrile | 10.0 | 8.14 | 81.4 | 70 - 130 |
| tert-Amyl Methyl Ether (TAME) | 10.0 | 8.64 | 86.4 | 70 - 130 |
| Benzene | 10.0 | 9.22 | 92.2 | 70 - 130 |
| Bromobenzene | 10.0 | 9.32 | 93.2 | 70 - 130 |
| Bromochloromethane | 10.0 | 10.3 | 103 | 70 - 130 |
| Bromodichloromethane | 10.0 | 10.2 | 102 | 70 - 130 |
| Bromoform | 10.0 | 9.84 | 98.4 | 70 - 130 |
| Bromomethane | 10.0 | 10.7 | 107 | 40 - 160 |
| 2-Butanone (MEK) | 100 | 75.5 | 75.5 | 40 - 160 |
| tert-Butyl Alcohol (TBA) UJ, LCSL | 100 | 60.9 | 60.9 | 40 - 160 |
| n-Butylbenzene | 10.0 | 8.30 | 83.0 | 70 - 130 |
| sec-Butylbenzene | 10.0 | 9.35 | 93.5 | 70 - 130 |
| tert-Butylbenzene | 10.0 | 9.85 | 98.5 | 70 - 130 |
| tert-Butyl Ethyl Ether (TBEE) | 10.0 | 8.80 | 88.0 | 70 - 130 |
| Carbon Disulfide | 100 | 92.0 | 92.0 | 70 - 130 |
| Carbon Tetrachloride | 10.0 | 10.3 | 103 | 70 - 130 |
| Chlorobenzene | 10.0 | 10.2 | 102 | 70 - 130 |
| Chlorodibromomethane | 10.0 | 10.0 | 100 | 70 - 130 |
| Chloroethane | 10.0 | 10.5 | 105 | 70 - 130 |
| Chloroform | 10.0 | 9.67 | 96.7 | 70 - 130 |
| Chloromethane | 10.0 | 11.3 | 113 | 40 - 160 |
| 2-Chlorotoluene | 10.0 | 9.79 | 97.9 | 70 - 130 |
| 4-Chlorotoluene | 10.0 | 9.72 | 97.2 | 70 - 130 |
| Cyclohexane | 10.0 | 9.71 | 97.1 | 70 - 130 |
| 1,2-Dibromo-3-chloropropane (DBCP) | 10.0 | 8.01 | 80.1 | 70 - 130 |
| 1,2-Dibromoethane (EDB) | 10.0 | 9.50 | 95.0 | 70 - 130 |
| Dibromomethane | 10.0 | 9.44 | 94.4 | 70 - 130 |
| 1,2-Dichlorobenzene | 10.0 | 9.76 | 97.6 | 70 - 130 |
| 1,3-Dichlorobenzene | 10.0 | 9.88 | 98.8 | 70 - 130 |
| 1,4-Dichlorobenzene | 10.0 | 9.81 | 98.1 | 70 - 130 |
| trans-1,4-Dichloro-2-butene | 10.0 | 7.70 | 77.0 | 70 - 130 |
| Dichlorodifluoromethane (Freon 12) | 10.0 | 9.65 | 96.5 | 40 - 160 |
| 1,1-Dichloroethane | 10.0 | 9.39 | 93.9 | 70 - 130 |
| 1,2-Dichloroethane | 10.0 | 10.2 | 102 | 70 - 130 |
| 1,1-Dichloroethylene | 10.0 | 9.86 | 98.6 | 70 - 130 |
| cis-1,2-Dichloroethylene | 10.0 | 9.54 | 95.4 | 70 - 130 |

GTD 8/19/2022

# 3 - FORM III

## LCS / LCS DUPLICATE RECOVERY

SW-846 8260D

| | | | |
|---|---|---|---|
| Laboratory: | Con-Test, a Pace Analytical Laboratory | Work Order: | 22F1625 |
| Client: | NYDEC_Wood - Portland, ME | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Matrix: | Water | Preparation: | SW-846 5030B |
| Batch: | B311672 | Laboratory ID: | B311672-BS1 |
| Column: | | Initial/Final: | 5 mL / 5 mL |

70-130

| ANALYTE | SPIKE ADDED (µg/L) | LCS CONCENTRATION (µg/L) | LCS % REC. | QC LIMITS REC. |
|---|---|---|---|---|
| trans-1,2-Dichloroethylene | 10.0 | 9.71 | 97.1 | 70 - 130 |
| 1,2-Dichloropropane | 10.0 | 10.2 | 102 | 70 - 130 |
| 1,3-Dichloropropane | 10.0 | 9.68 | 96.8 | 70 - 130 |
| 2,2-Dichloropropane | 10.0 | 9.28 | 92.8 | 40 - 130 |
| 1,1-Dichloropropene | 10.0 | 9.80 | 98.0 | 70 - 130 |
| cis-1,3-Dichloropropene | 10.0 | 9.64 | 96.4 | 70 - 130 |
| trans-1,3-Dichloropropene | 10.0 | 9.01 | 90.1 | 70 - 130 |
| Diethyl Ether | 10.0 | 9.08 | 90.8 | 70 - 130 |
| Diisopropyl Ether (DIPE) | 10.0 | 9.63 | 96.3 | 70 - 130 |
| 1,4-Dioxane | 100 | 80.1 | 80.1 | 40 - 130 |
| Ethylbenzene | 10.0 | 9.79 | 97.9 | 70 - 130 |
| Hexachlorobutadiene | 10.0 | 10.7 | 107 | 70 - 130 |
| 2-Hexanone (MBK) | 100 | 79.2 | 79.2 | 70 - 160 |
| Isopropylbenzene (Cumene) | 10.0 | 10.3 | 103 | 70 - 130 |
| p-Isopropyltoluene (p-Cymene) | 10.0 | 8.96 | 89.6 | 70 - 130 |
| Methyl Acetate | 10.0 | 10.3 | 103 | 70 - 130 |
| Methyl tert-Butyl Ether (MTBE) | 10.0 | 9.84 | 98.4 | 70 - 130 |
| Methyl Cyclohexane | 10.0 | 9.44 | 94.4 | 70 - 130 |
| Methylene Chloride | 10.0 | 9.20 | 92.0 | 70 - 130 |
| 4-Methyl-2-pentanone (MIBK) | 100 | 86.6 | 86.6 | 70 - 160 |
| Naphthalene UJ, LCSL | 10.0 | 5.66 | 56.6 | 40 - 130 |
| n-Propylbenzene | 10.0 | 9.64 | 96.4 | 70 - 130 |
| Styrene | 10.0 | 9.89 | 98.9 | 70 - 130 |
| 1,1,1,2-Tetrachloroethane | 10.0 | 10.4 | 104 | 70 - 130 |
| 1,1,2,2-Tetrachloroethane | 10.0 | 9.55 | 95.5 | 70 - 130 |
| Tetrachloroethylene | 10.0 | 10.8 | 108 | 70 - 130 |
| Tetrahydrofuran | 10.0 | 8.86 | 88.6 | 70 - 130 |
| Toluene | 10.0 | 10.2 | 102 | 70 - 130 |
| 1,2,3-Trichlorobenzene | 10.0 | 7.44 | 74.4 | 70 - 130 |
| 1,2,4-Trichlorobenzene | 10.0 | 7.72 | 77.2 | 70 - 130 |
| 1,3,5-Trichlorobenzene | 10.0 | 9.14 | 91.4 | 70 - 130 |
| 1,1,1-Trichloroethane | 10.0 | 10.0 | 100 | 70 - 130 |
| 1,1,2-Trichloroethane GTD 8/19/2022 | 10.0 | 10.1 | 101 | 70 - 130 |
| Trichloroethylene | 10.0 | 10.5 | 105 | 70 - 130 |
| Trichlorofluoromethane (Freon 11) | 10.0 | 9.83 | 98.3 | 70 - 130 |
| 1,2,3-Trichloropropane | 10.0 | 8.30 | 83.0 | 70 - 130 |

# 3 - FORM III

## LCS / LCS DUPLICATE RECOVERY

SW-846 8260D

| | | | |
|---|---|---|---|
| Laboratory: | Con-Test, a Pace Analytical Laboratory | Work Order: | 22F1625 |
| Client: | NYDEC_Wood - Portland, ME | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Matrix: | Water | Preparation: | SW-846 5030B |
| Batch: | B311672 | Laboratory ID: | B311672-BS1 |
| Column: | | Initial/Final: | 5 mL / 5 mL |

| ANALYTE | SPIKE ADDED (µg/L) | LCS CONCENTRATION (µg/L) | LCS % REC. | QC LIMITS REC. |
|---|---|---|---|---|
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 10.0 | 10.6 | 106 | 70 - 130 |
| 1,2,4-Trimethylbenzene | 10.0 | 8.56 | 85.6 | 70 - 130 |
| 1,3,5-Trimethylbenzene | 10.0 | 9.37 | 93.7 | 70 - 130 |
| Vinyl Chloride | 10.0 | 10.0 | 100 | 40 - 160 |
| m+p Xylene | 20.0 | 19.6 | 97.8 | 70 - 130 |
| o-Xylene | 10.0 | 10.1 | 101 | 70 - 130 |
| Xylenes (total) | 30.0 | 29.6 | 98.7 | 0 - 200 |

| ANALYTE | SPIKE ADDED (µg/L) | LCSD CONCENTRATION (µg/L) | 70-130 | LCSD % REC. # | % RPD # | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|---|---|---|---|---|
| Acetone | 100 | 75.9 | | 75.9 | 0.436 | 25 | 70 - 160 |
| Acrylonitrile | 10.0 | 7.66 | | 76.6 | 6.08 | 25 | 70 - 130 |
| tert-Amyl Methyl Ether (TAME) | 10.0 | 8.55 | | 85.5 | 1.05 | 25 | 70 - 130 |
| Benzene | 10.0 | 9.40 | | 94.0 | 1.93 | 25 | 70 - 130 |
| Bromobenzene | 10.0 | 9.63 | | 96.3 | 3.27 | 25 | 70 - 130 |
| Bromochloromethane | 10.0 | 10.7 | | 107 | 4.19 | 25 | 70 - 130 |
| Bromodichloromethane | 10.0 | 10.6 | | 106 | 3.64 | 25 | 70 - 130 |
| Bromoform | 10.0 | 9.77 | | 97.7 | 0.714 | 25 | 70 - 130 |
| Bromomethane | 10.0 | 10.1 | | 101 | 5.20 | 25 | 40 - 160 |
| 2-Butanone (MEK) | 100 | 75.2 | | 75.2 | 0.372 | 25 | 40 - 160 |
| tert-Butyl Alcohol (TBA) UJ, LCSL | 100 | 60.9 | | 60.9 | 0.0164 | 25 | 40 - 160 |
| n-Butylbenzene | 10.0 | 8.61 | | 86.1 | 3.67 | 25 | 70 - 130 |
| sec-Butylbenzene | 10.0 | 9.72 | | 97.2 | 3.88 | 25 | 70 - 130 |
| tert-Butylbenzene | 10.0 | 10.2 | | 102 | 3.00 | 25 | 70 - 130 |
| tert-Butyl Ethyl Ether (TBEE) | 10.0 | 8.79 | | 87.9 | 0.114 | 25 | 70 - 130 |
| Carbon Disulfide | 100 | 95.4 | | 95.4 | 3.67 | 25 | 70 - 130 |
| Carbon Tetrachloride | 10.0 | 10.4 | | 104 | 0.193 | 25 | 70 - 130 |
| Chlorobenzene | 10.0 | 10.5 | | 105 | 2.99 | 25 | 70 - 130 |
| Chlorodibromomethane | 10.0 | 10.3 | | 103 | 2.95 | 25 | 70 - 130 |
| Chloroethane | 10.0 | 11.1 | | 111 | 5.83 | 25 | 70 - 130 |
| Chloroform | 10.0 | 10.1 | | 101 | 4.15 | 25 | 70 - 130 |
| Chloromethane | 10.0 | 11.2 | | 112 | 1.24 | 25 | 40 - 160 |
| 2-Chlorotoluene | 10.0 | 10.0 | | 100 | 2.12 | 25 | 70 - 130 |
| 4-Chlorotoluene GTD 8/19/2022 | 10.0 | 9.91 | | 99.1 | 1.94 | 25 | 70 - 130 |
| Cyclohexane | 10.0 | 9.90 | | 99.0 | 1.94 | 25 | 70 - 130 |

# 3 - FORM III

## LCS / LCS DUPLICATE RECOVERY

### SW-846 8260D

| | | | |
|---|---|---|---|
| Laboratory: | Con-Test, a Pace Analytical Laboratory | Work Order: | 22F1625 |
| Client: | NYDEC_Wood - Portland, ME | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Matrix: | Water | Preparation: | SW-846 5030B |
| Batch: | B311672 | Laboratory ID: | B311672-BSD1 |
| Column: | | Initial/Final: | 5 mL / 5 mL |

| ANALYTE | SPIKE ADDED (µg/L) | LCSD CONCENTRATION (µg/L) | LCSD % REC. # | % RPD # | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|---|---|---|---|
| | | 70-130 | | | | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 10.0 | 8.05 | 80.5 | 0.498 | 25 | 70 - 130 |
| 1,2-Dibromoethane (EDB) | 10.0 | 9.73 | 97.3 | 2.39 | 25 | 70 - 130 |
| Dibromomethane | 10.0 | 9.86 | 98.6 | 4.35 | 25 | 70 - 130 |
| 1,2-Dichlorobenzene | 10.0 | 10.3 | 103 | 5.58 | 25 | 70 - 130 |
| 1,3-Dichlorobenzene | 10.0 | 10.3 | 103 | 3.87 | 25 | 70 - 130 |
| 1,4-Dichlorobenzene | 10.0 | 9.83 | 98.3 | 0.204 | 25 | 70 - 130 |
| trans-1,4-Dichloro-2-butene | 10.0 | 7.55 | 75.5 | 1.97 | 25 | 70 - 130 |
| Dichlorodifluoromethane (Freon 12) | 10.0 | 9.23 | 92.3 | 4.45 | 25 | 40 - 160 |
| 1,1-Dichloroethane | 10.0 | 9.81 | 98.1 | 4.38 | 25 | 70 - 130 |
| 1,2-Dichloroethane | 10.0 | 10.5 | 105 | 2.60 | 25 | 70 - 130 |
| 1,1-Dichloroethylene | 10.0 | 10.1 | 101 | 2.31 | 25 | 70 - 130 |
| cis-1,2-Dichloroethylene | 10.0 | 9.94 | 99.4 | 4.11 | 25 | 70 - 130 |
| trans-1,2-Dichloroethylene | 10.0 | 9.39 | 93.9 | 3.35 | 25 | 70 - 130 |
| 1,2-Dichloropropane | 10.0 | 10.3 | 103 | 1.37 | 25 | 70 - 130 |
| 1,3-Dichloropropane | 10.0 | 10.0 | 100 | 3.35 | 25 | 70 - 130 |
| 2,2-Dichloropropane | 10.0 | 9.47 | 94.7 | 2.03 | 25 | 40 - 130 |
| 1,1-Dichloropropene | 10.0 | 9.61 | 96.1 | 1.96 | 25 | 70 - 130 |
| cis-1,3-Dichloropropene | 10.0 | 10.1 | 101 | 4.36 | 25 | 70 - 130 |
| trans-1,3-Dichloropropene | 10.0 | 9.27 | 92.7 | 2.84 | 25 | 70 - 130 |
| Diethyl Ether | 10.0 | 9.10 | 91.0 | 0.220 | 25 | 70 - 130 |
| Diisopropyl Ether (DIPE) | 10.0 | 10.0 | 100 | 4.07 | 25 | 70 - 130 |
| 1,4-Dioxane | 100 | 74.5 | 74.5 | 7.31 | 50 | 40 - 130 |
| Ethylbenzene | 10.0 | 9.97 | 99.7 | 1.82 | 25 | 70 - 130 |
| Hexachlorobutadiene | 10.0 | 11.0 | 110 | 2.77 | 25 | 70 - 130 |
| 2-Hexanone (MBK) | 100 | 79.2 | 79.2 | 0.0253 | 25 | 70 - 160 |
| Isopropylbenzene (Cumene) | 10.0 | 10.5 | 105 | 2.03 | 25 | 70 - 130 |
| p-Isopropyltoluene (p-Cymene) | 10.0 | 9.16 | 91.6 | 2.21 | 25 | 70 - 130 |
| Methyl Acetate | 10.0 | 10.9 | 109 | 5.49 | 25 | 70 - 130 |
| Methyl tert-Butyl Ether (MTBE) | 10.0 | 9.63 | 96.3 | 2.16 | 25 | 70 - 130 |
| Methyl Cyclohexane | 10.0 | 9.70 | 97.0 | 2.72 | 25 | 70 - 130 |
| Methylene Chloride | 10.0 | 9.70 | 97.0 | 5.29 | 25 | 70 - 130 |
| 4-Methyl-2-pentanone (MIBK) | 100 | 86.5 | 86.5 | 0.0693 | 25 | 70 - 160 |
| Naphthalene UJ, LCSL | 10.0 | 5.62 | 56.2 | 0.709 | 25 | 40 - 130 |
| n-Propylbenzene | 10.0 | 9.94 | 99.4 | 3.06 | 25 | 70 - 130 |
| Styrene GTD 8/19/2022 | 10.0 | 10.4 | 104 | 4.93 | 25 | 70 - 130 |

# Response Factor Report GCMSVOA3

Method Path : C:\msdchem\1\methods\
Method File : C051619.M
Title : 8260 WATER 5MLS VOAMS 5973 #3
Last Update : Fri May 17 05:29:37 2019
Response Via : Initial Calibration

Calibration Files
0.4 =C1913608.D 0.5 =C1913609.D 1.0 =C1913610.D 2.0 =C1913611.D 5.0 =C1913612.D 10 =C1913613.D 20 =C1913614.D
50 =C1913615.D 100 =C1913616.D 200 =C1913617.D

| | | Compound | 0.4 | 0.5 | 1.0 | 2.0 | 5.0 | 10 | 20 | 50 | 100 | 200 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) | | PENTAFLUOROBENZENE... | ----------ISTD---------- | | | | | | | | | | | |
| 2) | S | 1,2-DICHLOROET... | 0.570 | 0.573 | 0.559 | 0.566 | 0.578 | 0.571 | 0.565 | 0.552 | 0.559 | 0.550 | 0.564 | 1.65 |
| 3) | | DICHLORODIFLUO... | 0.487 | 0.551 | 0.558 | 0.536 | 0.502 | 0.447 | 0.475 | 0.470 | 0.432 | 0.433 | 0.489 | 9.55 |
| 4) | | DIFLUOROCHLORO... | 0.622 | 0.612 | 0.625 | 0.616 | 0.590 | 0.540 | 0.591 | 0.579 | 0.530 | 0.541 | 0.585 | 6.18 |
| 5) | P | CHLOROMETHANE | | | 0.793 | 0.789 | 0.663 | 0.615 | 0.627 | 0.571 | 0.566 | 0.596 | 0.653 | 13.95 |
| 6) | C | VINYL CHLORIDE | 0.566 | 0.556 | 0.545 | 0.547 | 0.518 | 0.484 | 0.513 | 0.522 | 0.472 | 0.492 | 0.522 | 6.12# |
| 7) | | BROMOMETHANE | | | | 0.337 | 0.321 | 0.248 | 0.233 | 0.288 | 0.266 | 0.301 | 0.285 | 13.40 |
| 8) | | CHLOROETHANE | | 0.313 | 0.334 | 0.366 | 0.299 | 0.256 | 0.263 | 0.272 | 0.248 | 0.243 | 0.288 | 14.77 |
| 9) | | FLUORODICHLORO... | 0.828 | 0.861 | 0.843 | 0.832 | 0.766 | 0.736 | 0.773 | 0.784 | 0.715 | 0.747 | 0.788 | 6.32 |
| 10) | | TRICHLOROFLUOR... | 0.661 | 0.636 | 0.598 | 0.625 | 0.574 | 0.522 | 0.561 | 0.567 | 0.521 | 0.540 | 0.580 | 8.30 |
| 11) | | ETHANOL | | | | 0.012 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.009 | 0.010 | 8.76 |
| 12) | | DI ETHYL ETHER | 0.452 | 0.392 | 0.368 | 0.373 | 0.362 | 0.349 | 0.359 | 0.362 | 0.333 | 0.352 | 0.370 | 8.82 |
| 13) | | ACROLEIN | 0.119 | 0.122 | 0.137 | 0.112 | 0.121 | 0.116 | 0.132 | 0.128 | 0.121 | 0.128 | 0.123 | 6.19 |
| 14) | | ACETONE | | 0.234 | 0.211 | 0.188 | 0.177 | 0.170 | 0.192 | 0.176 | 0.168 | 0.177 | 0.188 | 11.56 |
| 15) | C | 1,1-DICHLOROET... | 0.596 | 0.605 | 0.602 | 0.631 | 0.594 | 0.542 | 0.568 | 0.583 | 0.535 | 0.551 | 0.581 | 5.35# |
| 16) | | 1,1,2-TRICL-1,... | 0.360 | 0.333 | 0.340 | 0.340 | 0.326 | 0.289 | 0.306 | 0.310 | 0.285 | 0.290 | 0.318 | 8.09 |
| 17) | | IODOMETHANE | 0.407 | 0.361 | 0.444 | 0.439 | 0.452 | 0.473 | 0.521 | 0.551 | 0.527 | 0.578 | 0.475 | 14.29 |
| 18) | | ACETONITRILE | | | | | | | | | | | 0.000 | -1.00 |
| 19) | | ALLYL CHLORIDE | | | | | | | | | | | 0.000 | -1.00 |
| 20) | | METHYL ACETATE | | 0.647 | 0.769 | 0.546 | 0.531 | 0.541 | 0.579 | 0.554 | 0.520 | 0.558 | 0.583 | 13.54 |
| 21) | | T-BUTYL ALCOHOL | 0.079 | 0.082 | 0.078 | 0.068 | 0.067 | 0.065 | 0.073 | 0.068 | 0.068 | 0.077 | 0.072 | 8.39 |
| 22) | | ACRYLONITRILE | 0.336 | 0.262 | 0.238 | 0.233 | 0.225 | 0.230 | 0.250 | 0.237 | 0.226 | 0.248 | 0.248 | 13.28 |
| 23) | | METHYLENE CHLO... | 0.639 | 0.690 | 0.649 | 0.631 | 0.608 | 0.581 | 0.597 | 0.595 | 0.553 | 0.622 | 0.616 | 6.26 |
| 24) | | CARBON DISULFIDE | 1.219 | 1.196 | 1.135 | 1.157 | 1.125 | 1.069 | 1.136 | 1.107 | 1.020 | 1.035 | 1.120 | 5.76 |
| 25) | | METHYL TERT-BU... | 1.306 | 1.442 | 1.375 | 1.375 | 1.256 | 1.233 | 1.295 | 1.306 | 1.204 | 1.313 | 1.311 | 5.46 |
| 26) | | TRANS 1,2-DICH... | 0.687 | 0.636 | 0.600 | 0.621 | 0.569 | 0.568 | 0.590 | 0.600 | 0.553 | 0.589 | 0.601 | 6.49 |
| 27) | P | 1,1-DICHLOROET... | 0.872 | 0.842 | 0.806 | 0.830 | 0.780 | 0.777 | 0.797 | 0.806 | 0.747 | 0.792 | 0.805 | 4.42 |
| 28) | | VINYL ACETATE | 1.590 | 1.544 | 1.601 | 1.554 | 1.544 | 1.508 | 1.605 | 1.580 | 1.464 | 1.472 | 1.546 | 3.30 |
| 29) | | DI ISOPROYL ETHER | 1.803 | 1.733 | 1.898 | 1.760 | 1.669 | 1.664 | 1.727 | 1.761 | 1.638 | 1.759 | 1.741 | 4.34 |
| 30) | | CHLOROPRENE | | | | | | | | | | | 0.000 | -1.00 |
| 31) | | 2-BUTANONE | 0.348 | 0.349 | 0.346 | 0.327 | 0.330 | 0.318 | 0.360 | 0.333 | 0.319 | 0.348 | 0.338 | 4.18 |
| 32) | | T-BUTYL ETHYL ... | 1.473 | 1.564 | 1.518 | 1.474 | 1.397 | 1.364 | 1.432 | 1.455 | 1.366 | 1.470 | 1.451 | 4.42 |
| 33) | | CIS-1,2-DICHLO... | 0.678 | 0.704 | 0.728 | 0.741 | 0.690 | 0.670 | 0.700 | 0.715 | 0.665 | 0.713 | 0.700 | 3.56 |
| 34) | | 2,2-DICHLOROPR... | 0.685 | 0.677 | 0.633 | 0.617 | 0.564 | 0.543 | 0.546 | 0.606 | 0.559 | 0.600 | 0.603 | 8.51 |
| 35) | | ETHYL ACETATE | | 0.907 | 0.635 | 0.659 | 0.671 | 0.610 | 0.690 | 0.658 | 0.624 | 0.689 | 0.683 | 12.99 |
| 36) | | PROPIONITRILE | | | | | | | | | | | 0.000 | -1.00 |
| 37) | | METHACRYLONITRILE | | | | | | | | | | | 0.000 | -1.00 |
| 38) | | BROMOCHLOROMET... | 0.402 | 0.421 | 0.438 | 0.445 | 0.423 | 0.424 | 0.427 | 0.428 | 0.369 | 0.354 | 0.413 | 7.19 |
| 39) | | TETRAHYDROFURAN | 0.122 | 0.229 | 0.218 | 0.208 | 0.203 | 0.195 | 0.218 | 0.207 | 0.200 | 0.216 | 0.202 | 14.76 |
| 40) | C | CHLOROFORM | 0.696 | 0.772 | 0.799 | 0.783 | 0.745 | 0.720 | 0.742 | 0.754 | 0.699 | 0.751 | 0.746 | 4.54# |
| 41) | | 1,1,1-TRICHLOR... | 0.580 | 0.642 | 0.592 | 0.621 | 0.591 | 0.571 | 0.594 | 0.610 | 0.564 | 0.599 | 0.596 | 3.93 |
| 42) | | CYCLOHEXANE | | | | | 0.814 | 0.689 | 0.700 | 0.709 | 0.650 | 0.673 | 0.706 | 8.09 |
| 43) | | CARBON TETRACH... | 0.468 | 0.488 | 0.535 | 0.525 | 0.496 | 0.477 | 0.493 | 0.519 | 0.480 | 0.515 | 0.500 | 4.55 |

GTD 8/19/2022

Data Path : C:\msdchem\1\data\C051619\
Data File : C1913611.D
Acq On : 16 May 2019 11:31 am
Operator :
Sample : 8260STD 2.0PPB 1905273 Inst : GCMSVOA3
Misc :
ALS Vial : 11 Sample Multiplier: 1



Quant Time: May 16 14:41:20 2019
Quant Method : C:\msdchem\1\methods\C053018.M
Quant Title : 8260 WATER 5MLS VOAMS 5973 #3
QLast Update : Wed Mar 13 07:34:04 2019
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | | Dev(Min) |
|---|---|---|---|---|---|---|---|
| Internal Standards | | | | | | | |
| 1) PENTAFLUOROBENZENE - ISTD | 4.199 | 168 | 167139 | 30.00 | UG/L | | 0.00 |
| 48) 1,4-DIFLUOROBENZENE - ... | 4.919 | 114 | 251921 | 30.00 | UG/L | | 0.00 |
| 70) CHLOROBENZENE-D5 ISTD | 7.755 | 82 | 126925 | 30.00 | UG/L | | 0.00 |
| 89) 1,4-DICHLOROBENZENE-D4... | 10.050 | 152 | 122166 | 30.00 | UG/L | # | 0.00 |
| System Monitoring Compounds | | | | | | | |
| 2) 1,2-DICHLOROETHANE-D4 SS | 4.470 | 65 | 78891 | 18.40 | UG/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 73.60% | | | | |
| 49) TOLUENE SS | 6.355 | 98 | 255886 | 24.47 | UG/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 97.88% | | | | |
| 71) 4-BROMOFLUOROBENZENE SS | 8.912 | 95 | 95865 | 24.14 | UG/L | | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 96.56% | | | | |
| Target Compounds | | | | | | | Qvalue |
| 3) DICHLORODIFLUOROMETHANE | 1.087 | 85 | 5973 | 1.75 | UG/L | | 100 |
| 4) DIFLUOROCHLOROMETHANE | 1.095 | 51 | 6861 | 1.66 | UG/L | # | 100 |
| 5) CHLOROMETHANE | 1.196 | 50 | 8793 | 2.21 | UG/L | # | 30 |
| 6) VINYL CHLORIDE | 1.260 | 62 | 6092 | 1.88 | UG/L | # | 85 |
| 7) BROMOMETHANE | 1.450 | 94 | 3753 | 1.90 | UG/L | | 95 |
| 8) CHLOROETHANE | 1.517 | 64 | 4074 | 2.03 | UG/L | | 100 |
| 9) FLUORODICHLOROMETHANE | 1.639 | 67 | 9272 | 1.88 | UG/L | | 99 |
| 10) TRICHLOROFLUOROMETHANE | 1.678 | 101 | 6961 | 1.65 | UG/L | | 96 |
| 11) ETHANOL | 1.798 | 45 | 1347m | 0.48 | UG/L | | |
| 12) DI ETHYL ETHER | 1.865 | 59 | 4155 | 1.66 | UG/L | # | 87 |
| 13) ACROLEIN | 1.957 | 56 | 12439 | 18.05 | UG/L | | 93 |
| 14) ACETONE | 2.071 | 43 | 20903 | 16.15 | UG/L | | 96 |
| 15) 1,1-DICHLOROETHENE | 2.027 | 61 | 7031 | 1.69 | UG/L | | 94 |
| 16) 1,1,2-TRICL-1,2,2-TRIF... | 2.024 | 101 | 3790 | 1.92 | UG/L | | 82 |
| 17) IODOMETHANE | 2.141 | 142 | 48871 | 20.62 | UG/L | | 99 |
| 20) METHYL ACETATE | 2.322 | 43 | 6089 | 0.90 | UG/L | # | 93 |
| 21) T-BUTYL ALCOHOL | 2.520 | 59 | 7606 | 15.76 | UG/L | # | 84 |
| 22) ACRYLONITRILE | 2.626 | 53 | 2599 | 1.68 | UG/L | | 96 |
| 23) METHYLENE CHLORIDE | 2.403 | 49 | 7026 | 1.55 | UG/L | | 99 |
| 24) CARBON DISULFIDE | 2.191 | 76 | 128945 | 20.30 | UG/L | | 100 |
| 25) METHYL TERT-BUTYL ETHE... | 2.643 | 73 | 15320 | 1.85 | UG/L | | 96 |
| 26) TRANS 1,2-DICHLOROETHENE | 2.632 | 61 | 6925 | 1.74 | UG/L | | 91 |
| 27) 1,1-DICHLOROETHANE | 3.047 | 63 | 9248 | 1.80 | UG/L | | 98 |
| 28) VINYL ACETATE | 3.114 | 43 | 173108 | 21.66 | UG/L | # | 89 |
| 29) DI ISOPROYL ETHER | 3.137 | 45 | 19614 | 1.81 | UG/L | | 97 |
| 31) 2-BUTANONE | 3.683 | 43 | 36492 | 17.31 | UG/L | | 99 |
| 32) T-BUTYL ETHYL ETHER | 3.510 | 59 | 16428 | 1.64 | UG/L | | 99 |
| 33) CIS-1,2-DICHLOROETHENE | 3.647 | 61 | 8258 | 1.66 | UG/L | | 90 |
| 34) 2,2-DICHLOROPROPANE | 3.644 | 77 | 6874 | 1.92 | UG/L | | 93 |
| 35) ETHYL ACETATE | 3.753 | 43 | 7345 | 3.43 | UG/L | | 96 |
| 38) BROMOCHLOROMETHANE | 3.884 | 49 | 4957 | 1.92 | UG/L | | 93 |
| 39) TETRAHYDROFURAN | 3.948 | 42 | 2317 | 1.92 | UG/L | # | 69 |
| 40) CHLOROFORM | 3.976 | 83 | 8728 | 1.81 | UG/L | | 97 |
| 41) 1,1,1-TRICHLOROETHANE | 4.146 | 97 | 6919 | 1.65 | UG/L | | 93 |
| 42) CYCLOHEXANE | 4.199 | 56 | 11500 | 1.58 | UG/L | # | 82 |
| 43) CARBON TETRACHLORIDE | 4.308 | 117 | 5855 | 1.65 | UG/L | | 99 |
| 44) 1,1-DICHLOROPROPENE | 4.316 | 75 | 6246 | 1.74 | UG/L | | 94 |
| 45) BENZENE | 4.520 | 78 | 19650 | 1.89 | UG/L | # | 90 |
| 47) T-AMYLMETHYL ETHER | 4.654 | 73 | 15083 | 1.94 | UG/L | | 95 |
| 50) 1,2-DICHLOROETHANE | 4.548 | 62 | 7204 | 1.47 | UG/L | | 97 |
| 51) TRICHLOROETHENE | 5.170 | 95 | 4589 | 1.86 | UG/L | | 98 |
| 52) METHYLCYCLOHEXANE | 5.340 | 83 | 6374 | 2.04 | UG/L | | 93 |
| 53) 1,2-DICHLOROPROPANE | 5.387 | 63 | 5330 | 1.94 | UG/L | # | 97 |

GTD 8/19/2022

Quantitation Report (QT Reviewed)



Data Path : C:\msdchem\1\data\C062722\
Data File : C22V17824.D
Acq On : 27 Jun 2022 4:04 pm
Operator :
Sample : 22F1625-02 Inst : GCMSVOA3
Misc :
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jun 30 06:28:16 2022
Quant Method : C:\msdchem\1\methods\C051619.M
Quant Title : 8260 WATER 5MLS VOAMS 5973 #3
QLast Update : Fri May 06 09:16:20 2022
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) PENTAFLUOROBENZENE - ISTD | 4.196 | 168 | 136665 | 30.00 | UG/L | 0.00 |
| 48) 1,4-DIFLUOROBENZENE - ... | 4.918 | 114 | 195622 | 30.00 | UG/L | 0.00 |
| 70) CHLOROBENZENE-D5 ISTD | 7.752 | 82 | 97507 | 30.00 | UG/L | 0.00 |
| 89) 1,4-DICHLOROBENZENE-D4... | 10.047 | 152 | 89094 | 30.00 | UG/L | # 0.00 |
| System Monitoring Compounds | | | | | | |
| 2) 1,2-DICHLOROETHANE-D4 SS | 4.469 | 65 | 62903 | 24.47 | UG/L | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 97.88% | | | |
| 49) TOLUENE SS | 6.355 | 98 | 194855 | 24.98 | UG/L | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 99.92% | | | |
| 71) 4-BROMOFLUOROBENZENE SS | 8.909 | 95 | 71021 | 24.55 | UG/L | 0.00 |
| Spiked Amount 25.000 | Range 70 - 130 | | Recovery = 98.20% | | | |
| Target Compounds | | | | | | Qvalue |
| 23) METHYLENE CHLORIDE | 2.400 | 49 | 706 | 0.25 | UG/L | # 21 |
| 40) CHLOROFORM | 3.979 | 83 | 735 | 0.22 | UG/L | # ✓ 16 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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DUSR Calculations Sheet

**Sample ID:** 360175-MW0030020 Dup
**TC:** Chloroform
**ICAL Level:**
**Val File Result for TC:** 0.22 J ug/L

## Ical Calc

| | | | |
|---|---|---|---|
| **Area TC** | 8728 | **1** | 0.696 |
| **Area IS** | 167139 | **2** | 0.772 |
| | | **3** | 0.799 |
| **Conc TC** | 2 | **4** | 0.783 |
| **Conc IS** | 30 | **5** | 0.745 |
| | | **6** | 0.72 |
| **RRF =** | 0.7833 | **7** | 0.742 |
| | | **8** | 0.754 |
| | | **9** | 0.699 |
| | | **10** | 0.751 |
| | | **Avg RRF =** | 0.7461 |
| | | **Std Dev =** | 0.033903 |
| | | **%RSD =** | 4.544068 |

## Sample Calc

| | | | |
|---|---|---|---|
| **Area TC** | 735 | **DF** | 1 |
| **Area IS** | 136665 | | |
| | | | |
| **Conc IS** | 30 | | |
| **Avg RRF** | 0.7461 | | |
| | | | |
| **Conc TC =** | 0.216249 µg/L | Conc TC = | 0.216249 |

Notes:
Green = matched reported value
Red = did not match reported value

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# PFAS

**NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD**
**Project:** Irvington Rugs June 2022
**Method:** 537
**Laboratory:** Con-Test **SDG(s):** 22F0915
**Date:** 8/19/2022
**Reviewer:** Gabrielle Davis

**Review Level** [X] NYSDEC DUSR [ ] USEPA Region II Guideline

1. ☑ **Case Narrative Review and Data Package Completeness** COMMENTS
   Were problems noted? Yes - see attached
   Were all the samples on the COC analyzed for the requested analyses? YES NO (circle one)
   Are Field Sample IDs and Locations assigned correctly? YES NO (circle one)

2. ☑ **Holding time and Sample Collection**
   Water: 14 days from collection to extraction; 28 days from extraction to analysis
   Hold time met for all samples? YES NO (circle one)

3. ☑ **QC Blanks**
   Are method blanks free of contamination? YES NO (circle one)
   Are rinse blanks free of contamination? YES NO NA (circle one)
   Are field reagent blanks free of contamination? YES NO NA (circle one)

4. ☑ **Instrument Tuning – Data Package Narrative Review**
   Did the laboratory narrative identify any results that were not within method criteria? YES NO (circle one)
   If yes, use professional judgment to evaluate data and qualify results if needed

5. ☑ **Internal Standards – Data Package Narrative Review**
   (Area Limits = -50% to +100%, RTs within 30 seconds of daily CCAL standard (or ICAL mid-point if samples follow ICAL))
   Did the laboratory narrative identify any sample internal standards that were not within criteria? YES NO (circle one)

   Did the laboratory qualify results based on internal standard exceedances? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed

6. ☑ **Instrument Calibration – Data Package Narrative Review**
   Did the laboratory narrative identify compounds that were not within criteria in the initial and/or continuing calibration standards? YES NO (circle one)

   Initial Calibration %RSD = 15%, Continuing Calibration %D = 20%

   Did the laboratory qualify results based on initial or continuing calibration exceedances? YES NO
   If yes to above, use professional judgment to evaluate data and qualify results if needed

7. ☑ **Surrogate Recovery** (Extracted Isotope Dilution Standards) (50-150)
   Were all results within limits? YES NO (circle one)
   Were any recoveries < 10%? (use professional judgment) See attached - subsets UJ/J and R, ISL R < 20%

8. ☑ **Matrix Spike** (70-130)
   Were MS/MSDs submitted/analyzed? YES NO

   Were all results within limits? YES NO NA (circle one) See attached - subset J+, MSH

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9. ☑ **Duplicates** (RPD limits = water 30)
Were Field Duplicates submitted/analyzed? YES NO

Were RPDs within criteria? YES NO NA (circle one)

10. ☑ **Laboratory Control Sample Results** (70-130)
Were all results within limits? YES NO (circle one) See attached - subset J+, LCSH

11. ☑ **Raw Data Review and Calculation Checks**

See attached for calulcation checks

12. ☑ **Electronic Data Review and Edits**
Does the EDD match the Form Is? YES NO (circle one)

13. ☑ **Tables**
**Table 1** (Samples and Analytical Methods)
**Table 2** (Analytical Results)
**Table 3** (Qualification Actions)
Were all tables produced and reviewed? YES NO (circle one)

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NYDEC_Wood - Portland, ME
511 Congress Street, Suite 200
Portland, ME 04101
ATTN: Chuck R. Staples

REPORT DATE: 7/25/2022

PURCHASE ORDER NUMBER: 142890

PROJECT NUMBER: 360175

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 22F0915

The results of analyses performed on the following samples submitted to Con-Test, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: Irvington, NY

| FIELD SAMPLE # | LAB ID: | MATRIX | SAMPLE DESCRIPTION | TEST | SUB LAB |
|---|---|---|---|---|---|
| 360175-MW003D020 ✓ | 22F0915-01 | Ground Water | | SOP-454 PFAS | |
| 360175-DP002011 ✓ | 22F0915-02 | Ground Water | | SOP-454 PFAS | |
| 360175-DP004011 ✓ | 22F0915-03 | Ground Water | | SOP-454 PFAS | |
| 360175-DP005011-~~MS/MSD~~ ✓ | 22F0915-04 | Ground Water | | SOP-454 PFAS | |
| 360175-DP005011-DUP ✓ | 22F0915-05 | Ground Water | | SOP-454 PFAS | |
| 360175-WC ✓ | 22F0915-06 | Soil | | SM 2540G | |
| | | | | SOP-466 PFAS | |

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**SM 2540G**

**Qualifications:**

**H-06**

Sample was extracted past the recommended holding time.

**Analyte & Samples(s) Qualified:**

**% Solids**

22F0915-06[360175-WC] Ok - no impact on data

**SOP-454 PFAS**

**Qualifications:**

**L-01**

Laboratory fortified blank/laboratory control sample recovery outside of control limits. Data validation is not affected since all results are "not detected" for all samples in this batch for this compound and bias is on the high side.

**Analyte & Samples(s) Qualified:**

**N-EtFOSAA** See attached for LCS review

B311892-BS1

**PF-18**

Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.

**Analyte & Samples(s) Qualified:**

**M2PFTA**

22F0915-04[360175-DP005011-MS/MSD], B311892-MSD1

**MPFDoA** See attached for EIS review

22F0915-04[360175-DP005011-MS/MSD], B311892-MSD1

**PF-20**

Sample extracted at a dilution. Elevated reporting limits due to adjusted sample volume during preparation.

**Analyte & Samples(s) Qualified:**

okay

22F0915-03RE1[360175-DP004011]

**S-29**

Extracted Internal Standard is outside of control limits.

**Analyte & Samples(s) Qualified:**

**d3-NMeFOSAA**

22F0915-03[360175-DP004011], 22F0915-04[360175-DP005011-MS/MSD]

**d5-NEtFOSAA**

22F0915-03[360175-DP004011], 22F0915-04[360175-DP005011-MS/MSD]

**M2-4:2FTS**

22F0915-01[360175-MW003D020], 22F0915-02[360175-DP002011], 22F0915-04[360175-DP005011-MS/MSD]

**M2-6:2FTS**

22F0915-01[360175-MW003D020], 22F0915-02[360175-DP002011]

**M2-8:2FTS**

22F0915-04[360175-DP005011-MS/MSD]

**M2PFTA** See attached for EIS review

22F0915-03[360175-DP004011], 22F0915-05[360175-DP005011-DUP]

**M7PFUnA**

22F0915-03[360175-DP004011], 22F0915-04[360175-DP005011-MS/MSD]

**M8FOSA**

22F0915-03[360175-DP004011], 22F0915-04[360175-DP005011-MS/MSD], 22F0915-05[360175-DP005011-DUP]

**MPFBA**

22F0915-03[360175-DP004011]

**MPFDoA**

22F0915-03[360175-DP004011], 22F0915-05[360175-DP005011-DUP]

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**INTERNAL STANDARD AREA AND RT SUMMARY**

**SOP-454 PFAS**

| Internal Standard | Response | RT | Reference Response | Reference RT | Area % | Area % Limits | RT Diff | RT Diff Limit | Q |
|---|---|---|---|---|---|---|---|---|---|
| **360175-MW003D020 (22F0915-01 )** | | | Lab File ID: 22F0915-01.d | | | Analyzed: 07/20/22 19:19 | | | |
| M8FOSA | 213115.8 | 4.01255 | 359,141.00 | 4.01255 | 59 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-4:2FTS UJ, ISL | 119794.5 | 2.5461 | 263,838.00 | 2.537883 | 45 | 50 - 150 | 0.0082 | +/-0.50 | * |
| M2PFTA | 986865.6 | 4.354033 | 1,580,120.00 | 4.35405 | 62 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-8:2FTS | 91882.59 | 3.82705 | 155,600.00 | 3.82705 | 59 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFBA | 392173.3 | 1.075083 | 662,980.00 | 1.0834 | 59 | 50 - 150 | -0.0083 | +/-0.50 | |
| M3HFPO-DA | 182529.6 | 2.872033 | 198,404.00 | 2.872033 | 92 | 50 - 150 | 0.0000 | +/-0.50 | |
| M6PFDA | 587500.2 | 3.82755 | 737,070.00 | 3.82755 | 80 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3PFBS | 147820.5 | 1.928117 | 175,865.00 | 1.928117 | 84 | 50 - 150 | 0.0000 | +/-0.50 | |
| M7PFUnA | 864031.6 | 3.970017 | 1,157,712.00 | 3.978 | 75 | 50 - 150 | -0.0080 | +/-0.50 | |
| M2-6:2FTS UJ, ISL | 65788.28 | 3.469383 | 137,118.00 | 3.469383 | 48 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M5PFPeA | 496094.9 | 1.749417 | 640,533.00 | 1.749417 | 77 | 50 - 150 | 0.0000 | +/-0.50 | |
| M5PFHxA | 973137.3 | 2.629817 | 1,180,952.00 | 2.621617 | 82 | 50 - 150 | 0.0082 | +/-0.50 | |
| M3PFHxS | 121638.3 | 3.242583 | 162,362.00 | 3.2345 | 75 | 50 - 150 | 0.0081 | +/-0.50 | |
| M4PFHpA | 1151973 | 3.21145 | 1,353,857.00 | 3.203083 | 85 | 50 - 150 | 0.0084 | +/-0.50 | |
| M8PFOA | 863982.3 | 3.4779 | 1,058,083.00 | 3.4779 | 82 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOS | 94531.5 | 3.668117 | 127,023.00 | 3.668117 | 74 | 50 - 150 | 0.0000 | +/-0.50 | |
| M9PFNA | 590545.9 | 3.66915 | 758,890.00 | 3.66915 | 78 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFDoA | 913609.4 | 4.112617 | 1,322,468.00 | 4.112617 | 69 | 50 - 150 | 0.0000 | +/-0.50 | |
| d5-NEtFOSAA | 214361.3 | 3.977483 | 298,352.00 | 3.977483 | 72 | 50 - 150 | 0.0000 | +/-0.50 | |
| d3-NMeFOSAA | 249143.2 | 3.897717 | 362,956.00 | 3.9059 | 69 | 50 - 150 | -0.0082 | +/-0.50 | |

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**INTERNAL STANDARD AREA AND RT SUMMARY**

**SOP-454 PFAS**

| Internal Standard | Response | RT | Reference Response | Reference RT | Area % | Area % Limits | RT Diff | RT Diff Limit | Q |
|---|---|---|---|---|---|---|---|---|---|
| **360175-DP002011 (22F0915-02 )** | | | Lab File ID: 22F0915-02.d | | | Analyzed: 07/20/22 19:26 | | | |
| M8FOSA | 253203.4 | 4.01255 | 359,141.00 | 4.01255 | 71 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-4:2FTS UJ, ISL | 119428.7 | 2.537883 | 263,838.00 | 2.537883 | 45 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M2PFTA | 959252.7 | 4.354033 | 1,580,120.00 | 4.35405 | 61 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-8:2FTS | 91028.08 | 3.82705 | 155,600.00 | 3.82705 | 59 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFBA | 429832.8 | 1.0834 | 662,980.00 | 1.0834 | 65 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3HFPO-DA | 159864 | 2.872033 | 198,404.00 | 2.872033 | 81 | 50 - 150 | 0.0000 | +/-0.50 | |
| M6PFDA | 551737.4 | 3.82755 | 737,070.00 | 3.82755 | 75 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3PFBS | 142145.9 | 1.9281 | 175,865.00 | 1.928117 | 81 | 50 - 150 | 0.0000 | +/-0.50 | |
| M7PFUnA | 890639.5 | 3.970017 | 1,157,712.00 | 3.978 | 77 | 50 - 150 | -0.0080 | +/-0.50 | |
| M2-6:2FTS UJ, ISL | 65023.34 | 3.469383 | 137,118.00 | 3.469383 | 47 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M5PFPeA | 484207.2 | 1.749417 | 640,533.00 | 1.749417 | 76 | 50 - 150 | 0.0000 | +/-0.50 | |
| M5PFHxA | 949538.6 | 2.629817 | 1,180,952.00 | 2.621617 | 80 | 50 - 150 | 0.0082 | +/-0.50 | |
| M3PFHxS | 128146.6 | 3.242583 | 162,362.00 | 3.2345 | 79 | 50 - 150 | 0.0081 | +/-0.50 | |
| M4PFHpA | 1114128 | 3.203083 | 1,353,857.00 | 3.203083 | 82 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOA | 854106.2 | 3.4779 | 1,058,083.00 | 3.4779 | 81 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOS | 100234.6 | 3.668117 | 127,023.00 | 3.668117 | 79 | 50 - 150 | 0.0000 | +/-0.50 | |
| M9PFNA | 519730.2 | 3.66915 | 758,890.00 | 3.66915 | 68 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFDoA | 971631.3 | 4.112617 | 1,322,468.00 | 4.112617 | 73 | 50 - 150 | 0.0000 | +/-0.50 | |
| d5-NEtFOSAA | 204389.2 | 3.977483 | 298,352.00 | 3.977483 | 69 | 50 - 150 | 0.0000 | +/-0.50 | |
| d3-NMeFOSAA | 259506.3 | 3.897717 | 362,956.00 | 3.9059 | 71 | 50 - 150 | -0.0082 | +/-0.50 | |

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**INTERNAL STANDARD AREA AND RT SUMMARY**

**SOP-454 PFAS**

| Internal Standard | Response | RT | Reference Response | Reference RT | Area % | Area % Limits | RT Diff | RT Diff Limit | Q |
|---|---|---|---|---|---|---|---|---|---|
| **360175-DP004011 (22F0915-03 )** | | | Lab File ID: 22F0915-03.d | | | Analyzed: 07/20/22 19:33 | | | |
| M8FOSA J, ISL | 134679.7 | 4.01255 | 359,141.00 | 4.01255 | 38 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M2-4:2FTS | 199643.4 | 2.529667 | 263,838.00 | 2.537883 | 76 | 50 - 150 | -0.0082 | +/-0.50 | |
| M2PFTA R, ISL | 2312.987 | 4.35405 | 1,580,120.00 | 4.35405 | 00 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M2-8:2FTS | 99905.3 | 3.818733 | 155,600.00 | 3.82705 | 64 | 50 - 150 | -0.0083 | +/-0.50 | |
| MPFBA J, ISL | 325042.7 | 1.075083 | 662,980.00 | 1.0834 | 49 | 50 - 150 | -0.0083 | +/-0.50 | * |
| M3HFPO-DA | 140128.3 | 2.86385 | 198,404.00 | 2.872033 | 71 | 50 - 150 | -0.0082 | +/-0.50 | |
| M6PFDA | 435154.3 | 3.81925 | 737,070.00 | 3.82755 | 59 | 50 - 150 | -0.0083 | +/-0.50 | |
| M3PFBS | 133757.9 | 1.919817 | 175,865.00 | 1.928117 | 76 | 50 - 150 | -0.0083 | +/-0.50 | |
| M7PFUnA UJ, ISL | 370674.4 | 3.970017 | 1,157,712.00 | 3.978 | 32 | 50 - 150 | -0.0080 | +/-0.50 | * |
| M2-6:2FTS | 117581.7 | 3.4614 | 137,118.00 | 3.469383 | 86 | 50 - 150 | -0.0080 | +/-0.50 | |
| M5PFPeA | 447609.8 | 1.741117 | 640,533.00 | 1.749417 | 70 | 50 - 150 | -0.0083 | +/-0.50 | |
| M5PFHxA | 896161.9 | 2.6134 | 1,180,952.00 | 2.621617 | 76 | 50 - 150 | -0.0082 | +/-0.50 | |
| M3PFHxS | 118179.4 | 3.2345 | 162,362.00 | 3.2345 | 73 | 50 - 150 | 0.0000 | +/-0.50 | |
| M4PFHpA | 1054201 | 3.203083 | 1,353,857.00 | 3.203083 | 78 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOA | 795782.6 | 3.4779 | 1,058,083.00 | 3.4779 | 75 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOS | 78727.73 | 3.660133 | 127,023.00 | 3.668117 | 62 | 50 - 150 | -0.0080 | +/-0.50 | |
| M9PFNA | 527432.8 | 3.669167 | 758,890.00 | 3.66915 | 70 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFDoA R, ISL | 85166.2 | 4.104633 | 1,322,468.00 | 4.112617 | 06 | 50 - 150 | -0.0080 | +/-0.50 | * |
| d5-NEtFOSAA J, ISL | 105920 | 3.977483 | 298,352.00 | 3.977483 | 36 | 50 - 150 | 0.0000 | +/-0.50 | * |
| d3-NMeFOSAA UJ, ISL | 146351 | 3.897717 | 362,956.00 | 3.9059 | 40 | 50 - 150 | -0.0082 | +/-0.50 | * |
| **360175-DP004011 (22F0915-03RE1 )** | | | Lab File ID: 22F0915-03RE1.d | | | Analyzed: 07/22/22 02:36 | | | |
| M8PFOS | 85701.5 | 3.668117 | 125,774.00 | 3.668117 | 68 | 50 - 150 | 0.0000 | +/-0.50 | |

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**INTERNAL STANDARD AREA AND RT SUMMARY**

**SOP-454 PFAS**

| Internal Standard | Response | RT | Reference Response | Reference RT | Area % | Area % Limits | RT Diff | RT Diff Limit | Q |
|---|---|---|---|---|---|---|---|---|---|
| **360175-DP005011-MS/MSD (22F0915-04 )** | | | Lab File ID: 22F0915-04.d | | | Analyzed: 07/20/22 19:40 | | | |
| M8FOSA R, ISL | 68865.27 | 4.01255 | 359,141.00 | 4.01255 | 19 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M2-4:2FTS UJ, ISL | 111616.5 | 2.529667 | 263,838.00 | 2.537883 | 42 | 50 - 150 | -0.0082 | +/-0.50 | * |
| M2PFTA R, ISL | 49304.37 | 4.354033 | 1,580,120.00 | 4.35405 | 03 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M2-8:2FTS UJ, ISL | 71026.13 | 3.818733 | 155,600.00 | 3.82705 | 46 | 50 - 150 | -0.0083 | +/-0.50 | * |
| MPFBA | 409798.8 | 1.0834 | 662,980.00 | 1.0834 | 62 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3HFPO-DA | 151265.8 | 2.872033 | 198,404.00 | 2.872033 | 76 | 50 - 150 | 0.0000 | +/-0.50 | |
| M6PFDA | 432694.1 | 3.82755 | 737,070.00 | 3.82755 | 59 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3PFBS | 137391.5 | 1.928117 | 175,865.00 | 1.928117 | 78 | 50 - 150 | 0.0000 | +/-0.50 | |
| M7PFUnA UJ, ISL | 413041.9 | 3.970017 | 1,157,712.00 | 3.978 | 36 | 50 - 150 | -0.0080 | +/-0.50 | * |
| M2-6:2FTS | 75599.23 | 3.4614 | 137,118.00 | 3.469383 | 55 | 50 - 150 | -0.0080 | +/-0.50 | |
| M5PFPeA | 461513.1 | 1.741117 | 640,533.00 | 1.749417 | 72 | 50 - 150 | -0.0083 | +/-0.50 | |
| M5PFHxA | 915960.7 | 2.621617 | 1,180,952.00 | 2.621617 | 78 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3PFHxS | 114629.4 | 3.2345 | 162,362.00 | 3.2345 | 71 | 50 - 150 | 0.0000 | +/-0.50 | |
| M4PFHpA | 1040686 | 3.203083 | 1,353,857.00 | 3.203083 | 77 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOA | 825057.8 | 3.4779 | 1,058,083.00 | 3.4779 | 78 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOS | 79846.14 | 3.668117 | 127,023.00 | 3.668117 | 63 | 50 - 150 | 0.0000 | +/-0.50 | |
| M9PFNA | 490712.4 | 3.66915 | 758,890.00 | 3.66915 | 65 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFDoA R, ISL | 255259.3 | 4.112617 | 1,322,468.00 | 4.112617 | 19 | 50 - 150 | 0.0000 | +/-0.50 | * |
| d5-NEtFOSAA UJ, ISL | 109023.1 | 3.977483 | 298,352.00 | 3.977483 | 37 | 50 - 150 | 0.0000 | +/-0.50 | * |
| d3-NMeFOSAA UJ, ISL | 171573.1 | 3.897717 | 362,956.00 | 3.9059 | 47 | 50 - 150 | -0.0082 | +/-0.50 | * |

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**INTERNAL STANDARD AREA AND RT SUMMARY**

**SOP-454 PFAS**

| Internal Standard | Response | RT | Reference Response | Reference RT | Area % | Area % Limits | RT Diff | RT Diff Limit | Q |
|---|---|---|---|---|---|---|---|---|---|
| **360175-DP005011-DUP (22F0915-05 )** | | | Lab File ID: 22F0915-05.d | | | Analyzed: 07/20/22 19:48 | | | |
| M8FOSA UJ, ISL | 74837.83 | 4.01255 | 359,141.00 | 4.01255 | 21 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M2-4:2FTS | 140654.1 | 2.537883 | 263,838.00 | 2.537883 | 53 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2PFTA R, ISL | 173346.8 | 4.35405 | 1,580,120.00 | 4.35405 | 11 | 50 - 150 | 0.0000 | +/-0.50 | * |
| M2-8:2FTS | 98794.45 | 3.818733 | 155,600.00 | 3.82705 | 63 | 50 - 150 | -0.0083 | +/-0.50 | |
| MPFBA | 435384.4 | 1.0834 | 662,980.00 | 1.0834 | 66 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3HFPO-DA | 149646.8 | 2.872033 | 198,404.00 | 2.872033 | 75 | 50 - 150 | 0.0000 | +/-0.50 | |
| M6PFDA | 565098.1 | 3.81925 | 737,070.00 | 3.82755 | 77 | 50 - 150 | -0.0083 | +/-0.50 | |
| M3PFBS | 146119 | 1.928117 | 175,865.00 | 1.928117 | 83 | 50 - 150 | 0.0000 | +/-0.50 | |
| M7PFUnA | 676216.4 | 3.970017 | 1,157,712.00 | 3.978 | 58 | 50 - 150 | -0.0080 | +/-0.50 | |
| M2-6:2FTS | 85570.2 | 3.4614 | 137,118.00 | 3.469383 | 62 | 50 - 150 | -0.0080 | +/-0.50 | |
| M5PFPeA | 495237 | 1.749417 | 640,533.00 | 1.749417 | 77 | 50 - 150 | 0.0000 | +/-0.50 | |
| M5PFHxA | 968317.5 | 2.621617 | 1,180,952.00 | 2.621617 | 82 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3PFHxS | 126840 | 3.2345 | 162,362.00 | 3.2345 | 78 | 50 - 150 | 0.0000 | +/-0.50 | |
| M4PFHpA | 1155396 | 3.203083 | 1,353,857.00 | 3.203083 | 85 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOA | 863717.5 | 3.4779 | 1,058,083.00 | 3.4779 | 82 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOS | 94737.46 | 3.668117 | 127,023.00 | 3.668117 | 75 | 50 - 150 | 0.0000 | +/-0.50 | |
| M9PFNA | 570610.7 | 3.66915 | 758,890.00 | 3.66915 | 75 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFDoA UJ, ISL | 551036 | 4.112617 | 1,322,468.00 | 4.112617 | 42 | 50 - 150 | 0.0000 | +/-0.50 | * |
| d5-NEtFOSAA | 178407.3 | 3.977483 | 298,352.00 | 3.977483 | 60 | 50 - 150 | 0.0000 | +/-0.50 | |
| d3-NMeFOSAA | 215558 | 3.897717 | 362,956.00 | 3.9059 | 59 | 50 - 150 | -0.0082 | +/-0.50 | |

GTD 8/19/2022

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by - LC/MS-MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B311892 - SOP 454-PFAAS** | | | | | | | | | | | | |
| **Blank (B311892-BLK1)** | | | | | Prepared: 07/12/22 Analyzed: 07/20/22 | | | | | | | |
| Perfluorooctanesulfonamide (FOSA) | ND | 1.9 | 0.39 | ng/L | | | | | | | | |
| Perfluorononanesulfonic acid (PFNS) | ND | 1.9 | 0.16 | ng/L | | | | | | | | |
| Perfluoro-1-hexanesulfonamide (FHxSA) | ND | 1.9 | 0.29 | ng/L | | | | | | | | |
| Perfluoro-1-butanesulfonamide (FBSA) | ND | 1.9 | 0.18 | ng/L | | | | | | | | |
| Perfluorohexanesulfonic acid (PFHxS) | ND | 1.9 | 0.32 | ng/L | | | | | | | | |
| Perfluoro-4-oxapentanoic acid (PFMPA) | ND | 1.9 | 0.39 | ng/L | | | | | | | | |
| Perfluoro-5-oxahexanoic acid (PFMBA) | ND | 1.9 | 0.32 | ng/L | | | | | | | | |
| 6:2 Fluorotelomersulfonic acid (6:2FTS A) | ND | 1.9 | 0.34 | ng/L | | | | | | | | |
| Perfluoropetanesulfonic acid (PFPeS) | ND | 1.9 | 0.24 | ng/L | | | | | | | | |
| Perfluoroundecanoic acid (PFUnA) | ND | 1.9 | 0.34 | ng/L | | | | | | | | |
| Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | ND | 1.9 | 0.26 | ng/L | | | | | | | | |
| Perfluoroheptanoic acid (PFHpA) | ND | 1.9 | 0.32 | ng/L | | | | | | | | |
| Perfluorooctanoic acid (PFOA) | ND | 1.9 | 0.64 | ng/L | | | | | | | | |
| Perfluorooctanesulfonic acid (PFOS) | ND | 1.9 | 0.56 | ng/L | | | | | | | | |
| Perfluorononanoic acid (PFNA) | ND | 1.9 | 0.32 | ng/L | | | | | 70-130 | | | |
| **LCS (B311892-BS1)** | | | | | Prepared: 07/12/22 Analyzed: 07/20/22 | | | | | | | |
| Perfluorobutanoic acid (PFBA) | 10.6 | 1.9 | 0.70 | ng/L | 9.36 | | 113 | | 73-129 | | | |
| Perfluorobutanesulfonic acid (PFBS) | 9.09 | 1.9 | 0.26 | ng/L | 8.28 | | 110 | | 72-130 | | | |
| Perfluoropentanoic acid (PFPeA) | 10.2 | 1.9 | 0.37 | ng/L | 9.36 | | 109 | | 72-129 | | | |
| Perfluorohexanoic acid (PFHxA) | 9.89 | 1.9 | 0.36 | ng/L | 9.36 | | 106 | | 72-129 | | | |
| 11Cl-PF3OUdS (F53B Major) | 9.64 | 1.9 | 0.60 | ng/L | 8.81 | | 109 | | 50-150 | | | |
| 9Cl-PF3ONS (F53B Minor) | 10.4 | 1.9 | 0.36 | ng/L | 8.72 | | 119 | | 50-150 | | | |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | 9.04 | 1.9 | 0.33 | ng/L | 8.81 | | 103 | | 50-150 | | | |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | 10.9 | 1.9 | 0.22 | ng/L | 9.36 | | 117 | | 50-150 | | | |
| 8:2 Fluorotelomersulfonic acid (8:2FTS A) | 10.3 | 1.9 | 0.57 | ng/L | 8.98 | | 114 | | 67-138 | | | |
| Perfluorodecanoic acid (PFDA) | 9.52 | 1.9 | 0.46 | ng/L | 9.36 | | 102 | | 71-129 | | | |
| Perfluorododecanoic acid (PFDoA) | 10.9 | 1.9 | 0.41 | ng/L | 9.36 | | 116 | | 72-134 | | | |
| Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | 8.91 | 1.9 | 0.22 | ng/L | 8.33 | | 107 | | 50-150 | | | |
| Perfluoroheptanesulfonic acid (PFHpS) | 9.48 | 1.9 | 0.88 | ng/L | 8.94 | | 106 | | 69-134 | | | |
| **N-EtFOSAA** Sample 3 J+, LCSH | 13.7 | 1.9 | 0.59 | ng/L | 9.36 | | **147** | * | 61-135 | | | L-01 |
| N-MeFOSAA | 12.0 | 1.9 | 0.71 | ng/L | 9.36 | | 129 | | 65-136 | | | |
| Perfluorotetradecanoic acid (PFTA) | 10.6 | 1.9 | 0.34 | ng/L | 9.36 | | 113 | | 71-132 | | | |
| Perfluorotridecanoic acid (PFTrDA) | 11.7 | 1.9 | 0.26 | ng/L | 9.36 | | 125 | | 65-144 | | | |
| 4:2 Fluorotelomersulfonic acid (4:2FTS A) | 9.54 | 1.9 | 0.26 | ng/L | 8.75 | | 109 | | 63-143 | | | |
| Perfluorodecanesulfonic acid (PFDS) | 9.66 | 1.9 | 0.31 | ng/L | 9.03 | | 107 | | 53-142 | | | |
| Perfluorooctanesulfonamide (FOSA) | 11.0 | 1.9 | 0.39 | ng/L | 9.36 | | 118 | | 67-137 | | | |
| Perfluorononanesulfonic acid (PFNS) | 10.6 | 1.9 | 0.16 | ng/L | 8.98 | | 117 | | 69-127 | | | |
| Perfluoro-1-hexanesulfonamide (FHxSA) High bias, samples ND - no quals | 12.9 | 1.9 | 0.29 | ng/L | 9.36 | | 137 | | 50-150 | | | |
| Perfluoro-1-butanesulfonamide (FBSA) | 10.6 | 1.9 | 0.18 | ng/L | 9.36 | | 114 | | 50-150 | | | |
| Perfluorohexanesulfonic acid (PFHxS) | 9.49 | 1.9 | 0.32 | ng/L | 8.56 | | 111 | | 68-131 | | | |
| Perfluoro-4-oxapentanoic acid (PFMPA) | 9.90 | 1.9 | 0.39 | ng/L | 9.36 | | 106 | | 50-150 | | | |
| Perfluoro-5-oxahexanoic acid (PFMBA) | 10.8 | 1.9 | 0.32 | ng/L | 9.36 | | 116 | | 50-150 | | GTD 8/19/2022 | |
| 6:2 Fluorotelomersulfonic acid (6:2FTS A) | 9.47 | 1.9 | 0.34 | ng/L | 8.89 | | 107 | | 64-140 | | | |
| Perfluoropetanesulfonic acid (PFPeS) | 10.3 | 1.9 | 0.24 | ng/L | 8.80 | | 117 | | 71-127 | | | |
| Perfluoroundecanoic acid (PFUnA) | 10.9 | 1.9 | 0.35 | ng/L | 9.36 | | 117 | | 69-133 | | | |
| Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | 8.71 | 1.9 | 0.26 | ng/L | 9.36 | | 93.1 | | 50-150 | | | |

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by - LC/MS-MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 70-130 | | | | | |
| **Batch B311892 - SOP 454-PFAAS** | | | | | | | | | | | | |
| **LCS (B311892-BS1)** | | | | | Prepared: 07/12/22 Analyzed: 07/20/22 | | | | | | | |
| Perfluoroheptanoic acid (PFHpA) | 9.96 | 1.9 | 0.32 | ng/L | 9.36 | | 106 | | 72-130 | | | |
| Perfluorooctanoic acid (PFOA) | 11.0 | 1.9 | 0.64 | ng/L | 9.36 | | 118 | | 71-133 | | | |
| Perfluorooctanesulfonic acid (PFOS) | 9.23 | 1.9 | 0.56 | ng/L | 8.66 | | 107 | | 65-140 | | | |
| Perfluorononanoic acid (PFNA) | 11.1 | 1.9 | 0.32 | ng/L | 9.36 | | 118 | | 69-130 | | | |
| **Matrix Spike (B311892-MS1)** | | | | | **Source: 22F0915-04** Prepared: 07/12/22 Analyzed: 07/20/22 | | | | | | | |
| Perfluorobutanoic acid (PFBA) | 20.0 | 1.8 | 0.68 | ng/L | 9.15 | 9.11 | 119 | | 73-129 | | | |
| Perfluorobutanesulfonic acid (PFBS) | 17.2 | 1.8 | 0.26 | ng/L | 8.10 | 8.45 | 109 | | 72-130 | | | |
| Perfluoropentanoic acid (PFPeA) | 18.8 | 1.8 | 0.36 | ng/L | 9.15 | 7.70 | 121 | | 72-129 | | | |
| Perfluorohexanoic acid (PFHxA) | 17.4 | 1.8 | 0.35 | ng/L | 9.15 | 6.89 | 115 | | 72-129 | | | |
| 11Cl-PF3OUdS (F53B Major) | 7.89 | 1.8 | 0.59 | ng/L | 8.62 | ND | 91.5 | | 50-150 | | | |
| 9Cl-PF3ONS (F53B Minor) | 9.54 | 1.8 | 0.36 | ng/L | 8.53 | ND | 112 | | 50-150 | | | |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | 9.11 | 1.8 | 0.32 | ng/L | 8.62 | ND | 106 | | 50-150 | | | |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | 10.4 | 1.8 | 0.22 | ng/L | 9.15 | ND | 113 | | 50-150 | | | |
| 8:2 Fluorotelomersulfonic acid (8:2FTS A) | 9.76 | 1.8 | 0.56 | ng/L | 8.78 | ND | 111 | | 67-138 | | | |
| Perfluorodecanoic acid (PFDA) | 10.6 | 1.8 | 0.45 | ng/L | 9.15 | ND | 116 | | 71-129 | | | |
| **Perfluorododecanoic acid (PFDoA)** High bias, sample ND - no quals | 12.4 | 1.8 | 0.40 | ng/L | 9.15 | ND | **136** | * | 72-134 | | | |
| Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | 9.06 | 1.8 | 0.21 | ng/L | 8.14 | ND | 111 | | 50-150 | | | |
| Perfluoroheptanesulfonic acid (PFHpS) | 9.11 | 1.8 | 0.86 | ng/L | 8.74 | ND | 104 | | 69-134 | | | |
| N-EtFOSAA High bias, sample ND - no quals | 11.9 | 1.8 | 0.58 | ng/L | 9.15 | ND | 131 | | 61-135 | | | |
| N-MeFOSAA | 11.6 | 1.8 | 0.70 | ng/L | 9.15 | ND | 126 | | 65-136 | | | |
| **Perfluorotetradecanoic acid (PFTA)** High bias, sample ND - no quals | 13.0 | 1.8 | 0.34 | ng/L | 9.15 | ND | **142** | * | 71-132 | | | |
| Perfluorotridecanoic acid (PFTrDA) | 13.0 | 1.8 | 0.25 | ng/L | 9.15 | ND | 142 | | 65-144 | | | |
| 4:2 Fluorotelomersulfonic acid (4:2FTS A) | 9.49 | 1.8 | 0.26 | ng/L | 8.56 | ND | 111 | | 63-143 | | | |
| Perfluorodecanesulfonic acid (PFDS) | 7.61 | 1.8 | 0.30 | ng/L | 8.83 | ND | 86.1 | | 53-142 | | | |
| Perfluorooctanesulfonamide (FOSA) | 11.8 | 1.8 | 0.39 | ng/L | 9.15 | ND | 129 | | 67-137 | | | |
| Perfluorononanesulfonic acid (PFNS) | 9.50 | 1.8 | 0.15 | ng/L | 8.78 | ND | 108 | | 69-127 | | | |
| Perfluoro-1-hexanesulfonamide (FHxSA) High bias, sample ND - no quals | 12.7 | 1.8 | 0.28 | ng/L | 9.15 | ND | 139 | | 50-150 | | | |
| Perfluoro-1-butanesulfonamide (FBSA) | 11.2 | 1.8 | 0.17 | ng/L | 9.15 | 0.278 | 120 | | 50-150 | | | |
| Perfluorohexanesulfonic acid (PFHxS) | 12.6 | 1.8 | 0.31 | ng/L | 8.37 | 2.60 | 119 | | 68-131 | | | |
| Perfluoro-4-oxapentanoic acid (PFMPA) | 11.7 | 1.8 | 0.38 | ng/L | 9.15 | ND | 128 | | 50-150 | | | |
| Perfluoro-5-oxahexanoic acid (PFMBA) | 11.3 | 1.8 | 0.31 | ng/L | 9.15 | ND | 123 | | 50-150 | | | |
| 6:2 Fluorotelomersulfonic acid (6:2FTS A) | 9.91 | 1.8 | 0.33 | ng/L | 8.69 | ND | 114 | | 64-140 | | | |
| Perfluoropetanesulfonic acid (PFPeS) | 10.6 | 1.8 | 0.24 | ng/L | 8.60 | 0.367 | 118 | | 71-127 | | | |
| Perfluoroundecanoic acid (PFUnA) | 11.1 | 1.8 | 0.34 | ng/L | 9.15 | ND | 121 | | 69-133 | | | |
| Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | 8.93 | 1.8 | 0.25 | ng/L | 9.15 | ND | 97.6 | | 50-150 | | | |
| Perfluoroheptanoic acid (PFHpA) | 14.6 | 1.8 | 0.32 | ng/L | 9.15 | 4.57 | 110 | | 72-130 | | | GTD 8/19/2022 |
| Perfluorooctanoic acid (PFOA) | 26.5 | 1.8 | 0.62 | ng/L | 9.15 | 16.0 | 114 | | 71-133 | | | |
| Perfluorooctanesulfonic acid (PFOS) | 38.3 | 1.8 | 0.55 | ng/L | 8.46 | 29.2 | 108 | | 65-140 | | | |
| Perfluorononanoic acid (PFNA) | 13.8 | 1.8 | 0.32 | ng/L | 9.15 | 3.63 | 111 | | 69-130 | | | |
| **Matrix Spike Dup (B311892-MSD1)** Sample and FD qual'd | | | | | **Source: 22F0915-04** Prepared: 07/12/22 Analyzed: 07/20/22 | | | | | | | |
| **Perfluorobutanoic acid (PFBA)** J+, MSH | 21.8 | 1.9 | 0.71 | ng/L | 9.49 | 9.11 | **133** | * | 73-129 | 8.44 | 30 | |
| Perfluorobutanesulfonic acid (PFBS) | 18.8 | 1.9 | 0.27 | ng/L | 8.40 | 8.45 | 124 | | 72-130 | 8.75 | 30 | |
| **Perfluoropentanoic acid (PFPeA)** J+, MSH | 20.5 | 1.9 | 0.37 | ng/L | 9.49 | 7.70 | **135** | * | 72-129 | 8.64 | 30 | |
| Perfluorohexanoic acid (PFHxA) | 18.7 | 1.9 | 0.37 | ng/L | 9.49 | 6.89 | 124 | | 72-129 | 7.07 | 30 | |
| 11Cl-PF3OUdS (F53B Major) | 8.74 | 1.9 | 0.61 | ng/L | 8.94 | ND | 97.8 | | 50-150 | 10.3 | 30 | |
| 9Cl-PF3ONS (F53B Minor) | 10.0 | 1.9 | 0.37 | ng/L | 8.84 | ND | 113 | | 50-150 | 4.87 | 30 | |

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by - LC/MS-MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 70-130 | | | |
| **Batch B311892 - SOP 454-PFAAS** | | | | | | | | | | | | |
| **Matrix Spike Dup (B311892-MSD1)** Sample and FD qual'd | **Source: 22F0915-04** | | | | Prepared: 07/12/22 Analyzed: 07/20/22 | | | | | | | |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | 10.8 | 1.9 | 0.33 | ng/L | 8.94 | ND | 120 | | 50-150 | 16.7 | 30 | |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) High bias, sample ND - no quals | 12.5 | 1.9 | 0.23 | ng/L | 9.49 | ND | 132 | | 50-150 | 18.6 | 30 | |
| 8:2 Fluorotelomersulfonic acid (8:2FTS A) | 12.0 | 1.9 | 0.58 | ng/L | 9.11 | ND | 131 | | 67-138 | 20.1 | 30 | |
| Perfluorodecanoic acid (PFDA) High bias, sample ND - no quals | 10.3 | 1.9 | 0.47 | ng/L | 9.49 | ND | 108 | | 71-129 | 3.14 | 30 | |
| **Perfluorododecanoic acid (PFDoA)** | 13.2 | 1.9 | 0.42 | ng/L | 9.49 | ND | **139** | * | 72-134 | 5.65 | 30 | |
| Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | 10.3 | 1.9 | 0.22 | ng/L | 8.44 | ND | 122 | | 50-150 | 12.7 | 30 | |
| Perfluoroheptanesulfonic acid (PFHpS) | 9.73 | 1.9 | 0.89 | ng/L | 9.06 | ND | 107 | | 69-134 | 6.54 | 30 | |
| **N-EtFOSAA** | 14.6 | 1.9 | 0.60 | ng/L | 9.49 | ND | **154** | * | 61-135 | 20.0 | 30 | |
| **N-MeFOSAA** High bias, sample ND - no quals | 13.8 | 1.9 | 0.72 | ng/L | 9.49 | ND | **145** | * | 65-136 | 17.2 | 30 | |
| **Perfluorotetradecanoic acid (PFTA)** | 14.1 | 1.9 | 0.35 | ng/L | 9.49 | ND | **149** | * | 71-132 | 7.92 | 30 | |
| **Perfluorotridecanoic acid (PFTrDA)** | 14.4 | 1.9 | 0.26 | ng/L | 9.49 | ND | **152** | * | 65-144 | 10.2 | 30 | |
| 4:2 Fluorotelomersulfonic acid (4:2FTS A) | 10.5 | 1.9 | 0.27 | ng/L | 8.87 | ND | 118 | | 63-143 | 9.78 | 30 | |
| Perfluorodecanesulfonic acid (PFDS) | 7.41 | 1.9 | 0.31 | ng/L | 9.15 | ND | 80.9 | | 53-142 | 2.68 | 30 | |
| Perfluorooctanesulfonamide (FOSA) | 12.2 | 1.9 | 0.40 | ng/L | 9.49 | ND | 129 | | 67-137 | 3.74 | 30 | |
| Perfluorononanesulfonic acid (PFNS) | 9.92 | 1.9 | 0.16 | ng/L | 9.11 | ND | 109 | | 69-127 | 4.31 | 30 | |
| Perfluoro-1-hexanesulfonamide (FHxSA) | 13.7 | 1.9 | 0.30 | ng/L | 9.49 | ND | 145 | | 50-150 | 7.65 | 30 | |
| Perfluoro-1-butanesulfonamide (FBSA) | 12.6 | 1.9 | 0.18 | ng/L | 9.49 | 0.278 | 130 | | 50-150 | 11.8 | 30 | |
| Perfluorohexanesulfonic acid (PFHxS) | 13.3 | 1.9 | 0.32 | ng/L | 8.68 | 2.60 | 123 | | 68-131 | 5.36 | 30 | |
| Perfluoro-4-oxapentanoic acid (PFMPA) High bias, sample ND - no quals | 12.7 | 1.9 | 0.39 | ng/L | 9.49 | ND | 134 | | 50-150 | 7.89 | 30 | |
| Perfluoro-5-oxahexanoic acid (PFMBA) | 12.4 | 1.9 | 0.32 | ng/L | 9.49 | ND | 131 | | 50-150 | 9.86 | 30 | |
| 6:2 Fluorotelomersulfonic acid (6:2FTS A) | 9.92 | 1.9 | 0.35 | ng/L | 9.01 | ND | 110 | | 64-140 | 0.0633 | 30 | |
| Perfluoropetanesulfonic acid (PFPeS) | 11.2 | 1.9 | 0.24 | ng/L | 8.92 | 0.367 | 122 | | 71-127 | 6.26 | 30 | |
| Perfluoroundecanoic acid (PFUnA) | 11.4 | 1.9 | 0.35 | ng/L | 9.49 | ND | 120 | | 69-133 | 2.84 | 30 | |
| Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | 9.96 | 1.9 | 0.26 | ng/L | 9.49 | ND | 105 | | 50-150 | 11.0 | 30 | |
| Perfluoroheptanoic acid (PFHpA) | 16.3 | 1.9 | 0.33 | ng/L | 9.49 | 4.57 | 124 | | 72-130 | 11.1 | 30 | |
| **Perfluorooctanoic acid (PFOA)** J+, MSH | 30.6 | 1.9 | 0.65 | ng/L | 9.49 | 16.0 | **154** | * | 71-133 | 14.5 | 30 | |
| **Perfluorooctanesulfonic acid (PFOS)** | 42.2 | 1.9 | 0.57 | ng/L | 8.78 | 29.2 | **149** | * | 65-140 | 9.61 | 30 | |
| Perfluorononanoic acid (PFNA) | 15.3 | 1.9 | 0.33 | ng/L | 9.49 | 3.63 | 123 | | 69-130 | 10.2 | 30 | |

GTD 8/19/2022

All within limits - no quals

Sample ID: 360175-DP005011 / 360175-DP005011-DUP

| Compound | Result | LabQual | DF | Dup | LabQual | DF | RPD |
|---|---|---|---|---|---|---|---|
| PFBA | 9.1 | | | 8 | | | 12.9 |
| PFBS | 8.4 | | | 7.9 | | | 6.1 |
| PFPeA | 7.7 | | | 8.3 | | | 7.5 |
| PFHxA | 6.9 | | | 7.4 | | | 7.0 |
| PFHxS | 2.6 | | | 2.6 | | | 0.0 |
| PFHpA | 4.6 | | | 4.7 | | | 2.2 |
| PFOA | 16 | | | 17 | | | 6.1 |
| PFOS | 29 | | | 34 | | | 15.9 |
| PFNA | 3.6 | | | 3.8 | | | 5.4 |

GTD 8/19/2022

# 6 - FORM VI
# INITIAL CALIBRATION DATA SHEET (Continued)

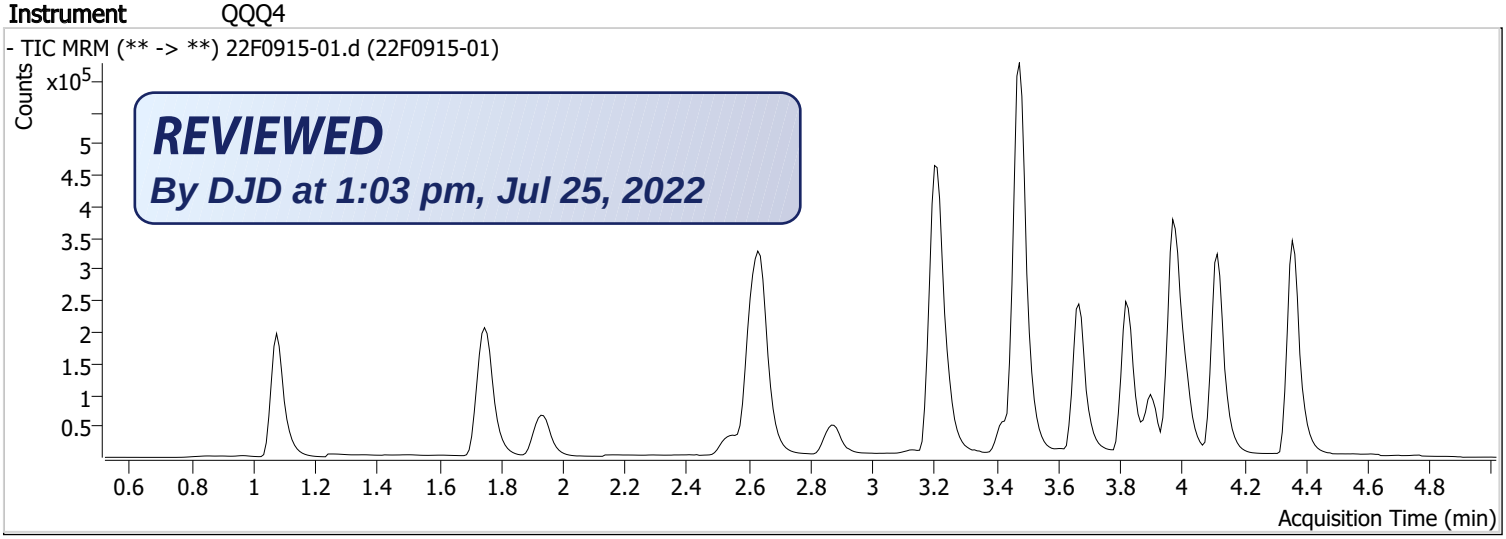
## SOP-454 PFAS

| | | | |
|---|---|---|---|
| Laboratory: | Con-Test, a Pace Analytical Laboratory | Work Order: | 22F0915 |
| Client: | NYDEC_Wood - Portland, ME | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Calibration: | 2200417 | Instrument: | QQQ4 |
| | | Calibration Date: | 7/19/2022 12:00:38AM |

| COMPOUND | Mean RF | RF RSD | Linear $r^2$ | Quad COD | LIMIT | Q |
|---|---|---|---|---|---|---|
| Perfluorobutanoic acid (PFBA) | 0.8912438 | 7.6 | | 1.000 | | |
| Perfluorobutanesulfonic acid (PFBS) | 1.075961 | 6.3 | | 1.000 | | |
| Perfluoropentanoic acid (PFPeA) | 0.930796 | 6.7 | | 1.000 | | |
| Perfluorohexanoic acid (PFHxA) | 0.838055 | 7.4 | | 1.000 | | |
| 11Cl-PF3OUdS (F53B Major) | 2.331324 | 9.1 | | 0.998 | | |
| 9Cl-PF3ONS (F53B Minor) | 5.503696 | 15.5 | | 1.000 | | |
| 4,8-dioxa-3H-perfluorononanoic acid (ADON/ | 1.677363 | 12.0 | | 0.999 | | |
| Hexafluoropropylene oxide dimer acid (HFPC | 0.1394841 | 12.9 | | 0.996 | | |
| 8:2 Fluorotelomersulfonic acid (8:2FTS A) | 0.8852401 | 9.5 | | 1.000 | | |
| Perfluorodecanoic acid (PFDA) | 1.055091 | 7.9 | | 0.999 | | |
| Perfluorododecanoic acid (PFDoA) | 0.9435844 | 14.0 | | 1.000 | | |
| Perfluoro(2-ethoxyethane)sulfonic acid (PFEI | 5.564404 | 8.4 | | 1.000 | | |
| Perfluoroheptanesulfonic acid (PFHpS) | 0.3115438 | 12.1 | | 0.995 | | |
| N-EtFOSAA | 0.8876816 | 9.8 | | 0.999 | | |
| N-MeFOSAA | 0.8346591 | 10.5 | 0.993 | | 0.99 | |
| Perfluorotetradecanoic acid (PFTA) | 0.9763037 | 10.0 | | 1.000 | | |
| Perfluorotridecanoic acid (PFTrDA) | 1.130409 | 11.6 | | 1.000 | | |
| 4:2 Fluorotelomersulfonic acid (4:2FTS A) | 1.088742 | 9.2 | | 1.000 | | |
| Perfluorodecanesulfonic acid (PFDS) | 0.6951758 | 5.6 | 0.999 | | 0.99 | |
| Perfluorooctanesulfonamide (FOSA) | 0.81553 | 10.1 | | 1.000 | | |
| Perfluorononanesulfonic acid (PFNS) | 0.3647482 | 10.3 | 1.000 | | 0.99 | |
| Perfluoro-1-hexanesulfonamide (FHxSA) | 0.42523 | 9.2 | | 1.000 | | |
| Perfluoro-1-butanesulfonamide (FBSA) | 0.3158963 | 6.4 | 0.999 | | 0.99 | |
| Perfluorohexanesulfonic acid (PFHxS) | 1.039414 | 7.3 | | 1.000 | | |
| Perfluoro-4-oxapentanoic acid (PFMPA) | 0.5952104 | 8.0 | | 1.000 | | |
| Perfluoro-5-oxahexanoic acid (PFMBA) | 0.6973306 | 8.2 | | 1.000 | | |
| 6:2 Fluorotelomersulfonic acid (6:2FTS A) | 1.111771 | 10.2 | | 1.000 | | |
| Perfluoropetanesulfonic acid (PFPeS) | 0.9926215 | 9.7 | | 1.000 | | |
| Perfluoroundecanoic acid (PFUnA) | 0.9167372 | 14.3 | | 1.000 | | |
| Nonafluoro-3,6-dioxaheptanoic acid (NFDHA | 0.4069599 | 7.5 | | 1.000 | | |
| Perfluoroheptanoic acid (PFHpA) | 0.9451036 | 11.1 | | 1.000 | | |

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| | | | |
|---|---|---|---|
| **Batch Path** | D:\MassHunter\Data\JULY2022\072022\QuantResults\B311892.batch.bin | | |
| **Analysis Time** | 7/25/2022 10:48 AM | **Last Calib Update** | 7/21/2022 11:51 AM |
| **Acq. Time** | 7/20/2022 7:19 PM | **Data File** | 22F0915-01.d |
| **Sample Type** | Sample | **Sample Name** | 22F0915-01 |
| **Dilution** | 1 | **Acq. Method** | PFAS ACQUISITION.m |
| **Sample Comment** | | **Processing method** | ID_071922.m |
| **Instrument** | QQQ4 | | |




| Compound | RT | Resp. | ISTD | RT | ISTD Resp. | Final Conc | Units | MI | Reason | Analyst & Date |
|---|---|---|---|---|---|---|---|---|---|---|
| PFBA | 1.079 | 199188 | MPFBA - ISTD | 1.075 | 392173 | 2864.7992 | pg/ml | | | |
| PFBS | 1.930 | 76333 | M3PFBS - ISTD | 1.928 | 147820 | 2216.2634 | pg/ml | | | |
| PFPeA | 1.751 | 298151 | M5PFPeA - ISTD | 1.749 | 496095 | 3223.1932 | pg/ml | | | |
| PFHxA | 2.631 | 462184 | M5PFHxA - ISTD | 2.630 | 973137 | 2855.8366 | pg/ml | | | |
| 11Cl-PF3OUdS | 4.001 | 0 | M8PFOS - ISTD | 3.668 | 94532 | ND | pg/ml | ✔ | 1 | BLH 07/22/22 |
| 9Cl-PF3ONS | 4.205 | 0 | M8PFOS - ISTD | 3.668 | 94532 | ND | pg/ml | ✔ | 1 | BLH 07/22/22 |
| ADONA | 3.463 | 0 | M4PFHpA - ISTD | 3.211 | 1151973 | ND | pg/ml | ✔ | 1 | BLH 07/22/22 |
| HFPO-DA | 2.889 | 0 | M3HFPO-DA - ISTD | 2.872 | 182530 | ND | pg/ml | ✔ | 1 | BLH 07/22/22 |
| 8-2 FTS | 4.003 | 0 | M2-8-2-FTS - ISTD | 3.827 | 91883 | ND | pg/ml | ✔ | 1 | BLH 07/22/22 |
| PFDA | 3.828 | 0 | M6PFDA - ISTD | 3.828 | 587500 | ND | pg/ml | ✔ | 1 | BLH 07/22/22 |
| PFDoA | 4.121 | 0 | MPFDoA - ISTD | 4.113 | 913609 | ND | pg/ml | ✔ | 1 | BLH 07/22/22 |
| PFEESA | 1.836 | 0 | M3PFBS - ISTD | 1.928 | 147820 | ND | pg/ml | ✔ | 1 | BLH 07/22/22 |
| PFHpS | 3.501 | 762 | M8PFOS - ISTD | 3.668 | 94532 | 122.7263 | pg/ml | | | |
| N-EtFOSAA | 4.082 | 0 | d5-N-EtFOSAA - ISTD | 3.977 | 214361 | ND | pg/ml | ✔ | 1 | BLH 07/22/22 |
| N-MeFOSAA | 4.114 | 0 | d3-N-MeFOSAA - ISTD | 3.898 | 249143 | ND | pg/ml | ✔ | 1 | BLH 07/22/22 |
| PFTA | 4.362 | 0 | M2PFTA - ISTD | 4.354 | 986866 | ND | pg/ml | ✔ | 1 | BLH 07/22/22 |
| PFTrDA | 4.559 | 0 | M2PFTA - ISTD | 4.354 | 986866 | ND | pg/ml | ✔ | 1 | BLH 07/22/22 |
| 4-2 FTS | 2.662 | 0 | M2-4-2-FTS - ISTD | 2.546 | 119794 | ND | pg/ml | ✔ | 1 | BLH 07/22/22 |
| PFDS | 4.113 | 0 | M3PFBS - ISTD | 1.928 | 147820 | ND | pg/ml | ✔ | 1 | BLH 07/22/22 |
| FOSA | 4.013 | 0 | M8FOSA - ISTD | 4.013 | 213116 | ND | pg/ml | ✔ | 1 | BLH 07/22/22 |

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# 1 - FORM I
# ANALYSIS DATA SHEET

360175-MW003D020

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Con-Test, a Pace Analytical Labora | | | Work Order: | 22F0915 |
| Client: | NYDEC_Wood - Portland, ME | | | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Matrix: | Ground Water | Laboratory ID: | 22F0915-01 | File ID: | 22F0915-01.d |
| Sampled: | 06/14/22 11:30 | Prepared: | 07/12/22 10:32 | Analyzed: | 07/20/22 19:19 |
| Solids: | | Preparation: | SOP 454-PFAAS | Dilution: | 1 |
| Initial/Final: | 289.02 mL / 1 mL | | | | |
| Batch: | B311892 | Sequence: | S074351 | Calibration: | 2200417 | Instrument: | QQQ4 |

| CAS NO. | COMPOUND | CONC. (ng/L) | | MDL | RL | Q |
|---|---|---|---|---|---|---|
| 375-22-4 | Perfluorobutanoic acid (PFBA) | 9.9 | ✓ | 0.64 | 1.7 | |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 7.7 | | 0.24 | 1.7 | |
| 2706-90-3 | Perfluoropentanoic acid (PFPeA) | 11 | | 0.34 | 1.7 | |
| 307-24-4 | Perfluorohexanoic acid (PFHxA) | 9.9 | | 0.33 | 1.7 | |
| 763051-92-9 | 11Cl-PF3OUdS (F53B Major) | | | 0.56 | 1.7 | |
| 756426-58-1 | 9Cl-PF3ONS (F53B Minor) | | | 0.34 | 1.7 | |
| 919005-14-4 | 4,8-dioxa-3H-perfluorononanoic acid (ADON/ | | | 0.30 | 1.7 | |
| 13252-13-6 | Hexafluoropropylene oxide dimer acid (HFPC | | | 0.21 | 1.7 | |
| 39108-34-4 | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | | | 0.53 | 1.7 | |
| 335-76-2 | Perfluorodecanoic acid (PFDA) | | | 0.42 | 1.7 | |
| 307-55-1 | Perfluorododecanoic acid (PFDoA) | | | 0.38 | 1.7 | |
| 113507-82-7 | Perfluoro(2-ethoxyethane)sulfonic acid (PFEI | | | 0.20 | 1.7 | |
| 375-92-8 | Perfluoroheptanesulfonic acid (PFHpS) | | | 0.81 | 1.7 | |
| 2991-50-6 | N-EtFOSAA | | | 0.55 | 1.7 | |
| 2355-31-9 | N-MeFOSAA | | | 0.66 | 1.7 | |
| 376-06-7 | Perfluorotetradecanoic acid (PFTA) | | | 0.32 | 1.7 | |
| 72629-94-8 | Perfluorotridecanoic acid (PFTrDA) | | | 0.24 | 1.7 | |
| 757124-72-4 | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | | | 0.24 | 1.7 | |
| 335-77-3 | Perfluorodecanesulfonic acid (PFDS) | | | 0.28 | 1.7 | |
| 754-91-6 | Perfluorooctanesulfonamide (FOSA) | | | 0.36 | 1.7 | |
| 68259-12-1 | Perfluorononanesulfonic acid (PFNS) | | | 0.15 | 1.7 | |
| 41997-13-1 | Perfluoro-1-hexanesulfonamide (FHxSA) | | | 0.27 | 1.7 | |
| 30334-69-1 | Perfluoro-1-butanesulfonamide (FBSA) | | | 0.17 | 1.7 | |
| 355-46-4 | Perfluorohexanesulfonic acid (PFHxS) | 2.5 | | 0.29 | 1.7 | GTD 8/19/2022 |
| 377-73-1 | Perfluoro-4-oxapentanoic acid (PFMPA) | | | 0.36 | 1.7 | |
| 863090-89-5 | Perfluoro-5-oxahexanoic acid (PFMBA) | | | 0.30 | 1.7 | |
| 27619-97-2 | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | | | 0.32 | 1.7 | |
| 2706-91-4 | Perfluoropetanesulfonic acid (PFPeS) | 0.34 | | 0.22 | 1.7 | J |
| 2058-94-8 | Perfluoroundecanoic acid (PFUnA) | | | 0.32 | 1.7 | |
| 151772-58-6 | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA | | | 0.24 | 1.7 | |

DUSR Calculations Sheet
PFAS

**Sample ID:** 360175-MW003D020
**TC:** PFBA
**Val File Result for TC:** 9.9 ng/L

## Sample Calc

| | | | |
|---|---|---|---|
| **Area TC** | 199188 | | |
| **Area IS** | 392173 | **DF** | 1 |
| | | **Sample Volume** | 289.02 |
| **Conc IS** | 5000 | **final vol** | 1 |
| **Avg RRF** | 0.891244 | | |
| **Conc (ng/mL) TC =** | 2849.436 | **Conc (ng/L)** | 9.85895914 |
| | | **Final Conc (ng/L)** | 9.85895914 |

Notes:
Green = matched reported value
Red = did not match reported value

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# DATA USABILITY SUMMARY REPORT
# SEPTEMBER 2022 SAMPLING EVENT
# IRVINGTON RUGS AND CLEANERS
# IRVINGTON, NEW YORK

## 1.0 INTRODUCTION

Soil samples were collected in September 2022 at the Irvington Rugs and Cleaners Site in Irvington, New York, and shipped to Con-test Laboratory located in East Longmeadow, MA, for analysis. Samples were analyzed by the following methods:

- Per- and Polyfluorinated Alkyl Substances (PFAS) by Method E537(M)
- Total Solids by Method SM2540G

Results were reported in the following sample delivery groups (SDGs):

- 22J0310

A Data Usability Summary Report (DUSR) review was completed based on the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation guidance (NYSDEC, 2010). Sample event information included in this DUSR is presented in the following tables:

- Table 1 – Summary of Samples and Analytical Methods
- Table 2 – Summary of Analytical Results
- Table 3 – Qualification Action Summary

A summary of table notes applicable to Tables 1, 2, and 3 is presented just before Table 1.

Laboratory deliverables included:

- Category B deliverables as defined in the NYSDEC Analytical Services Protocols (NYSDEC, 2005).

The DUSR review included the following evaluations. A table of the project control limits for PFAS is presented in Attachment A. DUSR review checklists and applicable laboratory QC summary forms are included in Attachment B to document QC outliers associated with qualification actions.

- Lab Report Narrative Review
- Data Package Completeness and COC records (Table 1 verification)
- Sample Preservation and Holding Times
- Instrument Calibration (report narrative/lab-qualifier evaluation)
- QC Blanks
- Laboratory Control Samples (LCS)
- Matrix Spike/Matrix Spike Duplicates (MS/MSD)
- Surrogate Spikes (if applicable)
- Internal Standards (if applicable)

- Field Duplicates
- Target Analyte Identification and Quantitation
- Raw Data (chromatograms), Calculation Checks and Transcription Verifications
- Reporting Limits
- Electronic Data Qualification and Verification

Data qualification actions were based on general procedures identified in the NYSDEC validation guideline for PFAS (NYSDEC, 2019).The following laboratory or data review qualifiers are used in the final data presentation:

U = target analyte is not detected above the reported detection limit
J = concentration is estimated
UJ = target analyte is not detected, value is estimated
J+ = concentration is estimated and potentially biased high

Results are interpreted to be usable as reported by the laboratory unless discussed in the following sections.

## 2.0 EXECUTIVE SUMMARY

Based on the DUSR review the majority of sample results are interpreted to be usable as reported by the laboratory. Results for a subset of samples were qualified due to extracted internal standard recoveries, ion ratios, and MS/MSD recoveries.

## 3.0 DATA QUALIFICATION ACTIONS AND OBSERVATIONS

PFAS

**22J0310**

The lab qualified perfluorotridecanoic acid (PFTrDA) in samples 360175-SB004-0.17 and 360175-SB004-D estimated due to the associated qualifier ion ratios greater than 150% of the associated calibration. Based on professional judgement, results for the affected analyte in the associated samples were qualified estimated (J) and are listed in Table 3 with reason code IAG.

Reporting limits for perfluorotetradecanoic acid (PFTA) in samples 360175-SB004-2.0, 360175-SB001-2.0, and 360175-SB003-2.0 were qualified estimated (UJ) based on recovery of the associated extracted internal standard lower than the 50-150 control limits specified by NYSDEC (NYSDEC, 2019). Qualified results are included in Table 3 with reason code EIS.

Results for perfluorooctanesulfonic acid (PFOS) in sample 360175-SB004-1.0 were qualified as estimated with potential high bias (J+) based on percent recoveries in the associated MS/MSD that exceeded the upper control limit. Qualified results are included in Table 3 with reason code MSH.

**Reference:**

NYSDEC, 2005. "Analytical Services Protocols"; July 2005.

NYSDEC, 2010. "Technical Guidance for Site Investigation and Remediation-Appendix 2B"; DER-10; Division of Environmental Remediation; May 2010.

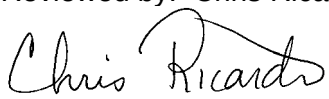
NYSDEC, 2019. "Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids; October 2019.

Data Validator: Kassidy Patoine



11/20/2022

Reviewed by: Chris Ricardi, NRCC-EAC



11/29/22

TABLE 1 - SUMMARY OF SAMPLES AND ANALYTICAL METHODS
DATA USABILITY SUMMARY REPORT
SEPTEMBER 2022 SAMPLING EVENT
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | **Method Class** | PFAS | Solids |
|---|---|---|---|---|---|---|---|
| | | | | | **Analysis Method** | E537(M) | SM2540G |
| | | | | | **Fraction** | N | N |
| **SDG** | **Location** | **Field Sample ID** | **Media** | **Sample Date** | **QC Code** | Parameters | Parameters |
| 22J0310 | QC | 360175-Blankwater | BW | 9/27/2022 | FB | 34 | |
| 22J0310 | QC | FRB | BW | 9/27/2022 | FB | 34 | |
| 22J0310 | SB-01 | 360175-SB001-0.17 | SOIL | 9/27/2022 | FS | 34 | 1 |
| 22J0310 | SB-01 | 360175-SB001-1.0 | SOIL | 9/27/2022 | FS | 34 | 1 |
| 22J0310 | SB-01 | 360175-SB001-2.0 | SOIL | 9/27/2022 | FS | 34 | 1 |
| 22J0310 | SB-02 | 360175-SB002-0.17 | SOIL | 9/27/2022 | FS | 34 | 1 |
| 22J0310 | SB-02 | 360175-SB002-1.0 | SOIL | 9/27/2022 | FS | 34 | 1 |
| 22J0310 | SB-02 | 360175-SB002-2.0 | SOIL | 9/27/2022 | FS | 34 | 1 |
| 22J0310 | SB-03 | 360175-SB003-0.17 | SOIL | 9/27/2022 | FS | 34 | 1 |
| 22J0310 | SB-03 | 360175-SB003-1.0 | SOIL | 9/27/2022 | FS | 34 | 1 |
| 22J0310 | SB-03 | 360175-SB003-2.0 | SOIL | 9/27/2022 | FS | 34 | 1 |
| 22J0310 | SB-04 | 360175-SB004-0.17 | SOIL | 9/27/2022 | FS | 34 | 1 |
| 22J0310 | SB-04 | 360175-SB004-1.0 | SOIL | 9/27/2022 | FS | 34 | 1 |
| 22J0310 | SB-04 | 360175-SB004-2.0 | SOIL | 9/27/2022 | FS | 34 | 1 |
| 22J0310 | SB-04 | 360175-SB004-D | SOIL | 9/27/2022 | FD | 34 | 1 |


Created by: KLD 11/9/22
Checked by: KRP 11/10/22

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
SEPTEMBER 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | Lab SDG | 22J0310 | | 22J0310 | | 22J0310 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Location | SB-01 | | SB-01 | | SB-01 | |
| | | | | Field Sample Date | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | |
| | | | | Field Sample ID | 360175-SB001-0.17 | | 360175-SB001-1.0 | | 360175-SB001-2.0 | |
| | | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | | Final Result | Final Qualifier | Final Result | Final Qualifier | Final Result | Final Qualifier |
| S | E537(M) | 11Cl-PF3OUdS (F53B Minor) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | 9Cl-PF3ONS (F53B Major) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Hexafluoropropylene oxide dimer acid (HFPO-DA) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | N-EtFOSAA | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | N-MeFOSAA | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluoro-1-butanesulfonamide (FBSA) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluoro-1-hexanesulfonamide (FHxSA) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluoro-4-oxapentanoic acid (PFMPA) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluoro-5-oxahexanoic acid (PFMBA) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluorobutanesulfonic acid (PFBS) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluorobutanoic acid (PFBA) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluorodecanesulfonic acid (PFDS) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluorodecanoic acid (PFDA) | UG/KG | | 0.07 | J | 0.61 | | 0.88 | |
| S | E537(M) | Perfluorododecanoic acid (PFDoA) | UG/KG | | 0.48 | U | 0.28 | J | 0.58 | U |
| S | E537(M) | Perfluoroheptanesulfonic acid (PFHpS) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluoroheptanoic acid (PFHpA) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluorohexanesulfonic acid (PFHxS) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluorohexanoic acid (PFHxA) | UG/KG | | 0.48 | U | 0.51 | U | 0.58 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
SEPTEMBER 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Lab SDG** | 22J0310 | | 22J0310 | | 22J0310 | |
| | | | **Location** | SB-01 | | SB-01 | | SB-01 | |
| | | | **Field Sample Date** | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | |
| | | | **Field Sample ID** | 360175-SB001-0.17 | | 360175-SB001-1.0 | | 360175-SB001-2.0 | |
| | | | **Qc Code** | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Final Result | Final Qualifier | Final Result | Final Qualifier | Final Result | Final Qualifier |
| S | E537(M) | Perfluorononanesulfonic acid (PFNS) | UG/KG | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluorononanoic acid (PFNA) | UG/KG | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluorooctanesulfonamide (FOSA) | UG/KG | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluorooctanesulfonic acid (PFOS) | UG/KG | 0.16 | J | 1.3 | | 2.5 | |
| S | E537(M) | Perfluorooctanoic acid (PFOA) | UG/KG | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluoropentanoic acid (PFPeA) | UG/KG | 0.48 | U | 0.08 | J | 0.11 | J |
| S | E537(M) | Perfluoropetanesulfonic acid (PFPeS) | UG/KG | 0.48 | U | 0.51 | U | 0.58 | U |
| S | E537(M) | Perfluorotetradecanoic acid (PFTA) | UG/KG | 0.48 | U | 0.13 | J | 0.58 | UJ |
| S | E537(M) | Perfluorotridecanoic acid (PFTrDA) | UG/KG | 0.48 | U | 0.51 | U | 0.58 | UJ |
| S | E537(M) | Perfluoroundecanoic acid (PFUnA) | UG/KG | 0.48 | U | 0.3 | J | 0.58 | U |
| S | SM2540G | Percent Solids | % BY WT. | 88.4 | | 80.7 | | 72.2 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
SEPTEMBER 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | Lab SDG | 22J0310 | | 22J0310 | | 22J0310 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Location | SB-02 | | SB-02 | | SB-02 | |
| | | | | Field Sample Date | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | |
| | | | | Field Sample ID | 360175-SB002-0.17 | | 360175-SB002-1.0 | | 360175-SB002-2.0 | |
| | | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | | Final Result | Final Qualifier | Final Result | Final Qualifier | Final Result | Final Qualifier |
| S | E537(M) | 11Cl-PF3OUdS (F53B Minor) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | 9Cl-PF3ONS (F53B Major) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | Hexafluoropropylene oxide dimer acid (HFPO-DA) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | N-EtFOSAA | UG/KG | | 0.5 | U | 0.14 | J | 0.51 | U |
| S | E537(M) | N-MeFOSAA | UG/KG | | 0.11 | J | 0.096 | J | 0.51 | U |
| S | E537(M) | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | Perfluoro-1-butanesulfonamide (FBSA) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | Perfluoro-1-hexanesulfonamide (FHxSA) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | Perfluoro-4-oxapentanoic acid (PFMPA) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | Perfluoro-5-oxahexanoic acid (PFMBA) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | Perfluorobutanesulfonic acid (PFBS) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | Perfluorobutanoic acid (PFBA) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | Perfluorodecanesulfonic acid (PFDS) | UG/KG | | 0.5 | U | 0.14 | J | 0.51 | U |
| S | E537(M) | Perfluorodecanoic acid (PFDA) | UG/KG | | 0.5 | U | 0.3 | J | 1.1 | |
| S | E537(M) | Perfluorododecanoic acid (PFDoA) | UG/KG | | 0.5 | U | 0.4 | J | 0.13 | J |
| S | E537(M) | Perfluoroheptanesulfonic acid (PFHpS) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | Perfluoroheptanoic acid (PFHpA) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | Perfluorohexanesulfonic acid (PFHxS) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | Perfluorohexanoic acid (PFHxA) | UG/KG | | 0.5 | U | 0.48 | U | 0.51 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
SEPTEMBER 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Lab SDG** | 22J0310 | | 22J0310 | | 22J0310 | |
| | | | **Location** | SB-02 | | SB-02 | | SB-02 | |
| | | | **Field Sample Date** | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | |
| | | | **Field Sample ID** | 360175-SB002-0.17 | | 360175-SB002-1.0 | | 360175-SB002-2.0 | |
| | | | **Qc Code** | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Final Result | Final Qualifier | Final Result | Final Qualifier | Final Result | Final Qualifier |
| S | E537(M) | Perfluorononanesulfonic acid (PFNS) | UG/KG | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | Perfluorononanoic acid (PFNA) | UG/KG | 0.5 | U | 0.48 | U | 0.089 | J |
| S | E537(M) | Perfluorooctanesulfonamide (FOSA) | UG/KG | 0.5 | U | 0.45 | J | 0.51 | U |
| S | E537(M) | Perfluorooctanesulfonic acid (PFOS) | UG/KG | 0.11 | J | 6.6 | | 13 | |
| S | E537(M) | Perfluorooctanoic acid (PFOA) | UG/KG | 0.5 | U | 0.48 | U | 0.21 | J |
| S | E537(M) | Perfluoropentanoic acid (PFPeA) | UG/KG | 0.5 | U | 0.084 | J | 0.089 | J |
| S | E537(M) | Perfluoropetanesulfonic acid (PFPeS) | UG/KG | 0.5 | U | 0.48 | U | 0.51 | U |
| S | E537(M) | Perfluorotetradecanoic acid (PFTA) | UG/KG | 0.5 | U | 0.18 | J | 0.51 | U |
| S | E537(M) | Perfluorotridecanoic acid (PFTrDA) | UG/KG | 0.5 | U | 0.14 | J | 0.51 | U |
| S | E537(M) | Perfluoroundecanoic acid (PFUnA) | UG/KG | 0.5 | U | 0.34 | J | 0.17 | J |
| S | SM2540G | Percent Solids | % BY WT. | 89.1 | | 90.1 | | 84.3 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
SEPTEMBER 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | Lab SDG | 22J0310 | | 22J0310 | | 22J0310 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Location | SB-03 | | SB-03 | SB-03 | SB-03 | SB-03 |
| | | | | Field Sample Date | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | |
| | | | | Field Sample ID | 360175-SB003-0.17 | | 360175-SB003-1.0 | | 360175-SB003-2.0 | |
| | | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | | Final Result | Final Qualifier | Final Result | Final Qualifier | Final Result | Final Qualifier |
| S | E537(M) | 11Cl-PF3OUdS (F53B Minor) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | 9Cl-PF3ONS (F53B Major) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | Hexafluoropropylene oxide dimer acid (HFPO-DA) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | N-EtFOSAA | UG/KG | | 0.49 | U | 0.5 | J | 0.52 | U |
| S | E537(M) | N-MeFOSAA | UG/KG | | 0.49 | U | 0.24 | J | 0.52 | U |
| S | E537(M) | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | Perfluoro-1-butanesulfonamide (FBSA) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | Perfluoro-1-hexanesulfonamide (FHxSA) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | Perfluoro-4-oxapentanoic acid (PFMPA) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | Perfluoro-5-oxahexanoic acid (PFMBA) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | Perfluorobutanesulfonic acid (PFBS) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | Perfluorobutanoic acid (PFBA) | UG/KG | | 0.088 | J | 0.081 | J | 0.52 | U |
| S | E537(M) | Perfluorodecanesulfonic acid (PFDS) | UG/KG | | 0.49 | U | 0.12 | J | 0.52 | U |
| S | E537(M) | Perfluorodecanoic acid (PFDA) | UG/KG | | 0.56 | | 0.7 | | 0.87 | |
| S | E537(M) | Perfluorododecanoic acid (PFDoA) | UG/KG | | 0.7 | | 0.93 | | 0.52 | U |
| S | E537(M) | Perfluoroheptanesulfonic acid (PFHpS) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | Perfluoroheptanoic acid (PFHpA) | UG/KG | | 0.16 | J | 0.16 | J | 0.1 | J |
| S | E537(M) | Perfluorohexanesulfonic acid (PFHxS) | UG/KG | | 0.49 | U | 0.5 | U | 0.52 | U |
| S | E537(M) | Perfluorohexanoic acid (PFHxA) | UG/KG | | 0.23 | J | 0.15 | J | 0.11 | J |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
SEPTEMBER 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Lab SDG** | 22J0310 | | 22J0310 | | | 22J0310 | | |
| | | | **Location** | SB-03 | | SB-03 | | SB-03 | SB-03 | | |
| | | | **Field Sample Date** | 9/27/2022 | | 9/27/2022 | | | 9/27/2022 | | |
| | | | **Field Sample ID** | 360175-SB003-0.17 | | 360175-SB003-1.0 | | | 360175-SB003-2.0 | | |
| | | | **Qc Code** | FS | | FS | | | FS | | |
| **Matrix** | **Method** | **Parameter** | **Units** | Final Result | Final Qualifier | Final Result | Final Qualifier | | Final Result | Final Qualifier | |
| S | E537(M) | Perfluorononanesulfonic acid (PFNS) | UG/KG | 0.49 | U | 0.5 | U | | 0.52 | U | |
| S | E537(M) | Perfluorononanoic acid (PFNA) | UG/KG | 0.31 | J | 0.22 | J | | 0.18 | J | |
| S | E537(M) | Perfluorooctanesulfonamide (FOSA) | UG/KG | 0.17 | J | 2.6 | | | 0.89 | | |
| S | E537(M) | Perfluorooctanesulfonic acid (PFOS) | UG/KG | 1.1 | | 15 | | | 22 | | |
| S | E537(M) | Perfluorooctanoic acid (PFOA) | UG/KG | 0.22 | J | 0.34 | J | | 0.24 | J | |
| S | E537(M) | Perfluoropentanoic acid (PFPeA) | UG/KG | 0.38 | J | 0.31 | J | | 0.17 | J | |
| S | E537(M) | Perfluoropetanesulfonic acid (PFPeS) | UG/KG | 0.49 | U | 0.5 | U | | 0.52 | U | |
| S | E537(M) | Perfluorotetradecanoic acid (PFTA) | UG/KG | 0.31 | J | 0.32 | J | | 0.52 | UJ | |
| S | E537(M) | Perfluorotridecanoic acid (PFTrDA) | UG/KG | 0.49 | U | 0.16 | J | | 0.52 | UJ | |
| S | E537(M) | Perfluoroundecanoic acid (PFUnA) | UG/KG | 0.12 | J | 0.34 | J | | 0.52 | U | |
| S | SM2540G | Percent Solids | % BY WT. | 89.7 | | 87.9 | | | 85.4 | | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
SEPTEMBER 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | Lab SDG | 22J0310 | | 22J0310 | | 22J0310 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Location | SB-04 | | SB-04 | | SB-04 | |
| | | | | Field Sample Date | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | |
| | | | | Field Sample ID | 360175-SB004-0.17 | | 360175-SB004-1.0 | | 360175-SB004-2.0 | |
| | | | | Qc Code | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | | Final Result | Final Qualifier | Final Result | Final Qualifier | Final Result | Final Qualifier |
| S | E537(M) | 11Cl-PF3OUdS (F53B Minor) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | 9Cl-PF3ONS (F53B Major) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | Hexafluoropropylene oxide dimer acid (HFPO-DA) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | N-EtFOSAA | UG/KG | | 0.34 | J | 0.24 | J | 0.55 | U |
| S | E537(M) | N-MeFOSAA | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | Perfluoro-1-butanesulfonamide (FBSA) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | Perfluoro-1-hexanesulfonamide (FHxSA) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | Perfluoro-4-oxapentanoic acid (PFMPA) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | Perfluoro-5-oxahexanoic acid (PFMBA) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | Perfluorobutanesulfonic acid (PFBS) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | Perfluorobutanoic acid (PFBA) | UG/KG | | 0.088 | J | 0.5 | U | 0.099 | J |
| S | E537(M) | Perfluorodecanesulfonic acid (PFDS) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | Perfluorodecanoic acid (PFDA) | UG/KG | | 0.3 | J | 0.1 | J | 0.41 | J |
| S | E537(M) | Perfluorododecanoic acid (PFDoA) | UG/KG | | 0.37 | J | 0.21 | J | 0.55 | U |
| S | E537(M) | Perfluoroheptanesulfonic acid (PFHpS) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | Perfluoroheptanoic acid (PFHpA) | UG/KG | | 0.11 | J | 0.5 | U | 0.099 | J |
| S | E537(M) | Perfluorohexanesulfonic acid (PFHxS) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | Perfluorohexanoic acid (PFHxA) | UG/KG | | 0.52 | U | 0.5 | U | 0.55 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
SEPTEMBER 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Lab SDG** | 22J0310 | | 22J0310 | | 22J0310 | |
| | | | **Location** | SB-04 | | SB-04 | | SB-04 | |
| | | | **Field Sample Date** | 9/27/2022 | | 9/27/2022 | | 9/27/2022 | |
| | | | **Field Sample ID** | 360175-SB004-0.17 | | 360175-SB004-1.0 | | 360175-SB004-2.0 | |
| | | | **Qc Code** | FS | | FS | | FS | |
| **Matrix** | **Method** | **Parameter** | **Units** | Final Result | Final Qualifier | Final Result | Final Qualifier | Final Result | Final Qualifier |
| S | E537(M) | Perfluorononanesulfonic acid (PFNS) | UG/KG | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | Perfluorononanoic acid (PFNA) | UG/KG | 0.11 | J | 0.5 | U | 0.14 | J |
| S | E537(M) | Perfluorooctanesulfonamide (FOSA) | UG/KG | 0.96 | | 1.3 | | 0.19 | J |
| S | E537(M) | Perfluorooctanesulfonic acid (PFOS) | UG/KG | 11 | | 6.8 | J+ | 14 | |
| S | E537(M) | Perfluorooctanoic acid (PFOA) | UG/KG | 0.43 | J | 0.19 | J | 0.37 | J |
| S | E537(M) | Perfluoropentanoic acid (PFPeA) | UG/KG | 0.14 | J | 0.5 | U | 0.21 | J |
| S | E537(M) | Perfluoropetanesulfonic acid (PFPeS) | UG/KG | 0.52 | U | 0.5 | U | 0.55 | U |
| S | E537(M) | Perfluorotetradecanoic acid (PFTA) | UG/KG | 0.16 | J | 0.099 | J | 0.55 | UJ |
| S | E537(M) | Perfluorotridecanoic acid (PFTrDA) | UG/KG | 0.36 | J | 0.21 | J | 0.55 | UJ |
| S | E537(M) | Perfluoroundecanoic acid (PFUnA) | UG/KG | 0.26 | J | 0.092 | J | 0.48 | J |
| S | SM2540G | Percent Solids | % BY WT. | 83.2 | | 87.6 | | 82.1 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
SEPTEMBER 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | Lab SDG | 22J0310 | |
|---|---|---|---|---|---|
| | | | Location | SB-04 | |
| | | | Field Sample Date | 9/27/2022 | |
| | | | Field Sample ID | 360175-SB004-D | |
| | | | Qc Code | FD | |
| Matrix | Method | Parameter | Units | Final Result | Final Qualifier |
| S | E537(M) | 11Cl-PF3OUdS (F53B Minor) | UG/KG | 0.52 | U |
| S | E537(M) | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | UG/KG | 0.52 | U |
| S | E537(M) | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | UG/KG | 0.52 | U |
| S | E537(M) | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | UG/KG | 0.52 | U |
| S | E537(M) | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | UG/KG | 0.52 | U |
| S | E537(M) | 9Cl-PF3ONS (F53B Major) | UG/KG | 0.52 | U |
| S | E537(M) | Hexafluoropropylene oxide dimer acid (HFPO-DA) | UG/KG | 0.52 | U |
| S | E537(M) | N-EtFOSAA | UG/KG | 0.37 | J |
| S | E537(M) | N-MeFOSAA | UG/KG | 0.52 | U |
| S | E537(M) | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | UG/KG | 0.52 | U |
| S | E537(M) | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | UG/KG | 0.52 | U |
| S | E537(M) | Perfluoro-1-butanesulfonamide (FBSA) | UG/KG | 0.52 | U |
| S | E537(M) | Perfluoro-1-hexanesulfonamide (FHxSA) | UG/KG | 0.52 | U |
| S | E537(M) | Perfluoro-4-oxapentanoic acid (PFMPA) | UG/KG | 0.52 | U |
| S | E537(M) | Perfluoro-5-oxahexanoic acid (PFMBA) | UG/KG | 0.52 | U |
| S | E537(M) | Perfluorobutanesulfonic acid (PFBS) | UG/KG | 0.52 | U |
| S | E537(M) | Perfluorobutanoic acid (PFBA) | UG/KG | 0.083 | J |
| S | E537(M) | Perfluorodecanesulfonic acid (PFDS) | UG/KG | 0.52 | U |
| S | E537(M) | Perfluorodecanoic acid (PFDA) | UG/KG | 0.3 | J |
| S | E537(M) | Perfluorododecanoic acid (PFDoA) | UG/KG | 0.35 | J |
| S | E537(M) | Perfluoroheptanesulfonic acid (PFHpS) | UG/KG | 0.52 | U |
| S | E537(M) | Perfluoroheptanoic acid (PFHpA) | UG/KG | 0.093 | J |
| S | E537(M) | Perfluorohexanesulfonic acid (PFHxS) | UG/KG | 0.52 | U |
| S | E537(M) | Perfluorohexanoic acid (PFHxA) | UG/KG | 0.098 | J |


Created by: KLD 11/11/22
Checked by: KRP 11/11/22

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
SEPTEMBER 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | |
|---|---|---|---|---|---|
| | | | **Lab SDG** | 22J0310 | |
| | | | **Location** | SB-04 | |
| | | | **Field Sample Date** | 9/27/2022 | |
| | | | **Field Sample ID** | 360175-SB004-D | |
| | | | **Qc Code** | FD | |
| **Matrix** | **Method** | **Parameter** | **Units** | Final Result | Final Qualifier |
| S | E537(M) | Perfluorononanesulfonic acid (PFNS) | UG/KG | 0.52 | U |
| S | E537(M) | Perfluorononanoic acid (PFNA) | UG/KG | 0.089 | J |
| S | E537(M) | Perfluorooctanesulfonamide (FOSA) | UG/KG | 1.2 | |
| S | E537(M) | Perfluorooctanesulfonic acid (PFOS) | UG/KG | 13 | |
| S | E537(M) | Perfluorooctanoic acid (PFOA) | UG/KG | 0.48 | J |
| S | E537(M) | Perfluoropentanoic acid (PFPeA) | UG/KG | 0.15 | J |
| S | E537(M) | Perfluoropetanesulfonic acid (PFPeS) | UG/KG | 0.52 | U |
| S | E537(M) | Perfluorotetradecanoic acid (PFTA) | UG/KG | 0.16 | J |
| S | E537(M) | Perfluorotridecanoic acid (PFTrDA) | UG/KG | 0.36 | J |
| S | E537(M) | Perfluoroundecanoic acid (PFUnA) | UG/KG | 0.24 | J |
| S | SM2540G | Percent Solids | % BY WT. | 82.8 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
SEPTEMBER 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | Lab SDG | 22J0310 | | 22J0310 | |
|---|---|---|---|---|---|---|---|---|
| | | | | Location | QC | | QC | |
| | | | | Field Sample Date | 9/27/2022 | | 9/27/2022 | |
| | | | | Field Sample ID | 360175-Blankwater | | FRB | |
| | | | | Qc Code | FB | | FB | |
| **Matrix** | **Method** | **Parameter** | **Units** | | Final Result | Final Qualifier | Final Result | Final Qualifier |
| L | E537(M) | 11Cl-PF3OUdS (F53B Minor) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | 9Cl-PF3ONS (F53B Major) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Hexafluoropropylene oxide dimer acid (HFPO-DA) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | N-EtFOSAA | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | N-MeFOSAA | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Perfluoro-1-butanesulfonamide (FBSA) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Perfluoro-1-hexanesulfonamide (FHxSA) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Perfluoro-4-oxapentanoic acid (PFMPA) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Perfluoro-5-oxahexanoic acid (PFMBA) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Perfluorobutanesulfonic acid (PFBS) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Perfluorobutanoic acid (PFBA) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Perfluorodecanesulfonic acid (PFDS) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Perfluorodecanoic acid (PFDA) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Perfluorododecanoic acid (PFDoA) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Perfluoroheptanesulfonic acid (PFHpS) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Perfluoroheptanoic acid (PFHpA) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Perfluorohexanesulfonic acid (PFHxS) | NG/L | | 2 | U | 1.9 | U |
| L | E537(M) | Perfluorohexanoic acid (PFHxA) | NG/L | | 2 | U | 1.9 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
SEPTEMBER 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | **Lab SDG** | 22J0310 | | 22J0310 | |
|---|---|---|---|---|---|---|---|
| | | | **Location** | QC | | QC | |
| | | | **Field Sample Date** | 9/27/2022 | | 9/27/2022 | |
| | | | **Field Sample ID** | 360175-Blankwater | | FRB | |
| | | | **Qc Code** | FB | | FB | |
| **Matrix** | **Method** | **Parameter** | **Units** | Final Result | Final Qualifier | Final Result | Final Qualifier |
| L | E537(M) | Perfluorononanesulfonic acid (PFNS) | NG/L | 2 | U | 1.9 | U |
| L | E537(M) | Perfluorononanoic acid (PFNA) | NG/L | 2 | U | 1.9 | U |
| L | E537(M) | Perfluorooctanesulfonamide (FOSA) | NG/L | 2 | U | 1.9 | U |
| L | E537(M) | Perfluorooctanesulfonic acid (PFOS) | NG/L | 2 | U | 1.9 | U |
| L | E537(M) | Perfluorooctanoic acid (PFOA) | NG/L | 2 | U | 1.9 | U |
| L | E537(M) | Perfluoropentanoic acid (PFPeA) | NG/L | 2 | U | 1.9 | U |
| L | E537(M) | Perfluoropetanesulfonic acid (PFPeS) | NG/L | 2 | U | 1.9 | U |
| L | E537(M) | Perfluorotetradecanoic acid (PFTA) | NG/L | 2 | U | 1.9 | U |
| L | E537(M) | Perfluorotridecanoic acid (PFTrDA) | NG/L | 2 | U | 1.9 | U |
| L | E537(M) | Perfluoroundecanoic acid (PFUnA) | NG/L | 2 | U | 1.9 | U |

TABLE 3 - SUMMARY OF QUALIFICATION ACTIONS
DATA USABILITY SUMMARY REPORT
SEPTEMBER 2022 SAMPLING EVENTS
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| Lab SDG | Method | Lab Sample ID | Field Sample ID | Fraction | Parameter | Lab Result | Lab Qualifier | Final Result | Final Qualifier | Val Reason Code | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22J0310 | E537(M) | 22J0310-03 | 360175-SB001-2.0 | N | Perfluorotetradecanoic acid (PFTA) | 0.58 | U | 0.58 | UJ | EIS | UG/KG |
| 22J0310 | E537(M) | 22J0310-03 | 360175-SB001-2.0 | N | Perfluorotridecanoic acid (PFTrDA) | 0.58 | U | 0.58 | UJ | EIS | UG/KG |
| 22J0310 | E537(M) | 22J0310-09 | 360175-SB003-2.0 | N | Perfluorotetradecanoic acid (PFTA) | 0.52 | U | 0.52 | UJ | EIS | UG/KG |
| 22J0310 | E537(M) | 22J0310-09 | 360175-SB003-2.0 | N | Perfluorotridecanoic acid (PFTrDA) | 0.52 | U | 0.52 | UJ | EIS | UG/KG |
| 22J0310 | E537(M) | 22J0310-10 | 360175-SB004-0.17 | N | Perfluorotridecanoic acid (PFTrDA) | 0.36 | J | 0.36 | J | IAG | UG/KG |
| 22J0310 | E537(M) | 22J0310-11 | 360175-SB004-1.0 | N | Perfluorooctanesulfonic acid (PFOS) | 6.8 | | 6.8 | J+ | MSH | UG/KG |
| 22J0310 | E537(M) | 22J0310-12 | 360175-SB004-2.0 | N | Perfluorotetradecanoic acid (PFTA) | 0.55 | U | 0.55 | UJ | EIS | UG/KG |
| 22J0310 | E537(M) | 22J0310-12 | 360175-SB004-2.0 | N | Perfluorotridecanoic acid (PFTrDA) | 0.55 | U | 0.55 | UJ | EIS | UG/KG |
| 22J0310 | E537(M) | 22J0310-13 | 360175-SB004-D | N | Perfluorotridecanoic acid (PFTrDA) | 0.36 | J | 0.36 | J | IAG | UG/KG |

**Standard Table Notes:**

Sample Type (QC Code)

FS – field sample

FD – field duplicate

TB – trip blank

EB – equipment blank

FB – field blank

Matrix

GW – ground water

BW – blank water

TW – tap water

SV – soil vapor

SED – sediment

SW – surface water

S – soil

L – water

Units

mg/L – milligrams per liter

ng/L – nanograms per liter

µg/L – micrograms per liter

mg/kg – milligrams per kilogram

µg/kg – micrograms per kilogram

µg/$m^3$ – micrograms per cubic meter

Qualifiers

U – not detected above quantitation limit

J – estimated quantity

J+ - estimated quantity, biased high

J- - estimated quantity, biased low

R – data unusable

Fraction

T – total

D – dissolved

N – normal

Qualification Reason Codes

BL1 – method blank qualifier

BL2 – field or trip blank qualifier

CCV – continuing calibration verification recovery outside limits

CCV%D – continuing calibration verification percent difference exceeds goal

CCVRRF – continuing calibration relative response factor low

CI – chromatographic interference present

DCPD – dual column percent difference exceeds limit

E – result exceeds calibration range

FD – field duplicate precision goal exceeded

FP – false positive interference

HT – holding time for prep or analysis exceeded

HTG – holding time for prep or analysis grossly exceeded

ICV – initial calibration verification recovery outside limit

ICVRRF – initial calibration verification relative response factor low

ICVRSD – initial calibration verification % relative standard deviation exceeds goal

ISH – internal standard response greater than limit

ISL – internal standard response less than limit

LCSH – laboratory control sample recovery high

LCSL – laboratory control sample recovery low

LCSRPD – laboratory control sample/duplicate relative % difference precision goal exceeded

LD – lab duplicate precision goal exceeded

MSH – matrix spike and/or MS duplicate recovery high

MSL – matrix spike and/or MS duplicate recovery low

MSRPD – matrix spike/duplicate relative % difference precision goal exceeded

N – analyte identification is not certain

PEM – performance evaluation mixture exceeds limit

PM – sample percent moisture exceeds EPA guideline

SD – serial dilution result exceeds percent difference limit

SP – sample preservation/collection does not meet method requirement

SSH – surrogate recovery high

SSL – surrogate recovery low

TD – dissolved concentration exceeds total

PAHs – polycyclic aromatic hydrocarbons

**ATTACHMENT A**
**SUMMARY OF VALIDATION QC LIMITS FOR SURROGATES, SPIKES, AND DUPLICATES**
**BASED ON THE REGION 2 VALIDATION GUIDELINES**

| PARAMETER | QC TEST | ANALYTE | Soil (%R) | Soil (RPD) | WATER (%R) | Water (RPD) |
|---|---|---|---|---|---|---|
| Volatiles | Surrogate | All Surrogate Compounds | 70 - 130 | | 80 - 120 | |
| | LCS | All Target Compounds | 70 - 130 | | 70 - 130 | |
| | MS/MSD | All Target Compounds | 70 - 130 | 35 | 70 - 130 | 20 |
| | Field Duplicate | All Target Compounds | | 100 | | 50 |
| Per- and Polyfluorinated Alkyl Substances (PFAS) | Surrogate (1) | All Surrogate Compounds | 50 - 150 | | 50 - 150 | |
| | LCS | All Target Compounds | 70 - 130 | | 70 - 130 | |
| | MS/MSD | All Target Compounds | 70 - 130 | 30 | 70 - 130 | 30 |
| | Field Duplicate | All Target Compounds | | 30 | | 30 |
| Semivolatiles | Surrogate | All BN Compounds | 50 - 140 | | 50 - 140 | |
| | | All Acid Compounds | 30 - 140 | | 30 - 140 | |
| | LCS | All BN Compounds | 50 - 140 | | 50 - 140 | |
| | | All Acid Compounds | 30 - 140 | | 30 - 140 | |
| | MS/MSD | All BN Compounds | 50 - 140 | 35 | 50 - 140 | 20 |
| | | All Acid Compounds | 30 - 140 | 35 | 30 - 140 | 20 |
| | Field Duplicate | All Target Compounds | | 100 | | 50 |
| Pesticides | Surrogate | All Surrogate Compounds | 30 - 150 | | 30 - 150 | |
| | LCS | All Target Compounds | Lab Limits | | Lab Limits | |
| | MS/MSD | All Target Compounds | Lab Limits | Lab Limits | Lab Limits | Lab Limits |
| | Field Duplicate | All Target Compounds | | 100 | | 50 |
| PCBs | Surrogate | All Surrogate Compounds | 30 - 150 | | 30 - 150 | |
| | LCS | All Target Analytes | 50 - 150 | | 50 - 150 | |
| | MS/MSD[1] | All Target Analytes | 29 - 135 | 20 | 29 - 135 | 20 |
| | Field Duplicate | All Target Analytes | | 100 | | 50 |
| Inorganics-Metals | LCS | All Target Analytes | 80 - 120 | | 80 - 120 | |
| | MS/MSD | All Target Analytes | 75 -125 | 35 | 75 -125 | 20 |
| | Lab Duplicate[2] | All Target Analytes | | 35 | | 20 |
| | Field Duplicate[2] | All Target Analytes | | 35 | | 20 |

Notes:
(1) For PFAS, surrogate = extracted isotope dilution standard
LCS - Laboratory Control Sample
MS/MSD - Matrix spike/ Matrix Spike Duplicate
RPD = Relative percent difference
%R = percent recovery
QC Limits are based on USEPA Region II Data Validation Guidelines and Project QA/QC Objectives

# DATA USABILITY SUMMARY REPORT
# SEPTEMBER 2022 SAMPLING EVENT
# IRVINGTON RUGS AND CLEANERS
# IRVINGTON, NEW YORK

## ATTACHMENT B

# PFAS

**NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD**
**Project:** Irvington Rugs
**Method:** 537
**Laboratory:** Con-test Pace **SDG(s):** 22J0310
**Date:** 11/10/2022
**Reviewer:** Kassidy Patoine

**Review Level** [X] NYSDEC DUSR [ ] USEPA Region II Guideline

1. ☑ ☐ **Case Narrative Review and Data Package Completeness** COMMENTS
Were problems noted? Yes PFTrDA in samples 22J0310-10 and 22J0310-13, qualifier ion ration was greater than 150% in associated calibration. J, IAG
Were all the samples on the COC analyzed for the requested analyses? YES NO (circle one)
Are Field Sample IDs and Locations assigned correctly? YES NO (circle one)

2. ☑ ☐ **Holding time and Sample Collection**
Water: 14 days from collection to extraction; 28 days from extraction to analysis
Hold time met for all samples? YES NO (circle one)

3. ☑ ☐ **QC Blanks**
Are method blanks free of contamination? YES NO (circle one)
Are rinse blanks free of contamination? YES NO NA (circle one)
Are field reagent blanks free of contamination? YES NO NA (circle one)

4. ☑ ☐ **Instrument Tuning – Data Package Narrative Review**
Did the laboratory narrative identify any results that were not within method criteria? YES NO (circle one)
If yes, use professional judgment to evaluate data and qualify results if needed

5. ☑ ☐ **Internal Standards – Data Package Narrative Review**
(Area Limits = -50% to +100%, RTs within 30 seconds of daily CCAL standard (or ICAL mid-point if samples follow ICAL))
Did the laboratory narrative identify any sample internal standards that were not within criteria?
YES NO (circle one)

Did the laboratory qualify results based on internal standard exceedances? YES NO
If yes to above, use professional judgment to evaluate data and qualify results if needed

6. ☑ ☐ **Instrument Calibration – Data Package Narrative Review**
Did the laboratory narrative identify compounds that were not within criteria in the initial and/or continuing calibration standards? YES NO (circle one)

Initial Calibration %RSD = 15%, Continuing Calibration %D = 20%

Did the laboratory qualify results based on initial or continuing calibration exceedances? YES NO
If yes to above, use professional judgment to evaluate data and qualify results if needed

7. ☐ ☑ **Surrogate Recovery** (Extracted Isotope Dilution Standards) (50-150)
Were all results within limits? YES NO (circle one)
Were any recoveries < 10%? (use professional judgment)
B319521 - M2-8:2FTS 162% area. Only associated with field blanks - no quals
M2PFTA (PFTA, PFTrDA) in samples 22J0310-03, 22J0310-09, and 22J0310. UJ, EIS

8. ☐ ☑ **Matrix Spike** (70-130)
Were MS/MSDs submitted/analyzed? YES NO

Were all results within limits? YES NO NA (circle one)
4,8-dioxa-3H-perfluorononanoic acid (ADONA) in the MS/MSD associated with sample 22J0310-11 had high percent recovery (170%). Sample result ND, no quals
Perfluorooctanesulfonic acid (PFOS) in the MS/MSD associated with sample 22J0310-11 had high percent recovery (158%). J+, MSH

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9. ☑ ☐ **Duplicates** (RPD limits = water 30)
Were Field Duplicates submitted/analyzed? YES NO

Were RPDs within criteria? YES NO NA (circle one)

10. ☐ ☑ **Laboratory Control Sample Results** (70-130)
Were all results within limits? YES NO (circle one)
ADONA in the LCS/LCSD associated with batch B318791. All associated sample results ND, no quals

ADONA in the LCS/LCSD associated with batch B319211.Sample result ND, no quals
11. ☐ ☑ **Raw Data Review and Calculation Checks**

12. ☐ ☑ **Electronic Data Review and Edits**
Does the EDD match the Form Is? YES NO (circle one)

13. ☑ ☐ **Tables**
**Table 1** (Samples and Analytical Methods)
**Table 2** (Analytical Results)
**Table 3** (Qualification Actions)
Were all tables produced and reviewed? YES NO (circle one)

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**SOP-454 PFAS**

**Qualifications:**

**PF-17**

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

**Analyte & Samples(s) Qualified:**

**M2-8:2FTS**
22J0310-14[360175-Blankwater]

**S-29**

Extracted Internal Standard is outside of control limits.

**Analyte & Samples(s) Qualified:**

**M2-8:2FTS**
B319521-BS1

**M2PFTA**
B319521-BLK1

**SOP-466 PFAS**

**Qualifications:**

**L-01**

Laboratory fortified blank/laboratory control sample recovery outside of control limits. Data validation is not affected since all results are "not detected" for all samples in this batch for this compound and bias is on the high side.

**Analyte & Samples(s) Qualified:**

**4,8-dioxa-3H-perfluorononanoic ac**
B318791-BS1, B319211-BS1

**MS-12**

Matrix spike recovery and matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a high bias for reported result or non-homogeneous sample aliquots cannot be eliminated.

**Analyte & Samples(s) Qualified:**

**4,8-dioxa-3H-perfluorononanoic ac**
B318791-MS1, B318791-MSD1

**Perfluorooctanesulfonic acid (PFO**
22J0310-11[360175-SB004-1.0], B318791-MS1, B318791-MSD1

**PF-22**

Qualifier ion ratio >150% of associated calibration. Detection is suspect.

**Analyte & Samples(s) Qualified:**

J, IAG

**Perfluorotridecanoic acid (PFTrDA**
22J0310-10[360175-SB004-0.17], 22J0310-13[360175-SB004-D]

**S-29**

Extracted Internal Standard is outside of control limits.

**Analyte & Samples(s) Qualified:**

**M2PFTA**
22J0310-03[360175-SB001-2.0], 22J0310-09[360175-SB003-2.0], 22J0310-12[360175-SB004-2.0]

**M3HFPO-DA**
S078173-CCV2

**M8PFOS**
S078173-CCV5

**MPFBA**
S078173-CCV4, S078173-CCV5

KRP 11/30/22

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The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Tod E. Kopyscinski
Laboratory Director

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by - LC/MS-MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B319211 - SOP 465-PFAAS** | | | | | | | | | | | | |
| **LCS (B319211-BS1)** | | | | | Prepared: 10/17/22 Analyzed: 10/21/22 | | | | | | | |
| **4,8-dioxa-3H-perfluorononanoic acid (ADONA)** | 2.72 | 0.43 | 0.14 | µg/kg wet | 2.05 | | **133** | * | 55.2-122 | sample result ND, no quals | | L-01 |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | 1.89 | 0.43 | 0.21 | µg/kg wet | 2.18 | | 86.5 | | 27.6-137 | | | |
| 8:2 Fluorotelomersulfonic acid (8:2FTS A) | 1.86 | 0.43 | 0.11 | µg/kg wet | 2.09 | | 88.7 | | 65-137 | | | |
| Perfluorodecanoic acid (PFDA) | 1.81 | 0.43 | 0.056 | µg/kg wet | 2.18 | | 82.9 | | 69-133 | | | |
| Perfluorododecanoic acid (PFDoA) | 1.75 | 0.43 | 0.066 | µg/kg wet | 2.18 | | 80.1 | | 69-135 | | | |
| Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | 1.60 | 0.43 | 0.071 | µg/kg wet | 1.94 | | 82.7 | | 56.7-133 | | | |
| Perfluoroheptanesulfonic acid (PFHpS) | 1.76 | 0.43 | 0.13 | µg/kg wet | 2.08 | | 84.7 | | 70-132 | | | |
| N-EtFOSAA | 2.11 | 0.43 | 0.12 | µg/kg wet | 2.18 | | 96.9 | | 61-139 | | | |
| N-MeFOSAA | 2.20 | 0.43 | 0.079 | µg/kg wet | 2.18 | | 101 | | 63-144 | | | |
| Perfluorotetradecanoic acid (PFTA) | 1.81 | 0.43 | 0.082 | µg/kg wet | 2.18 | | 82.9 | | 69-133 | | | |
| Perfluorotridecanoic acid (PFTrDA) | 1.96 | 0.43 | 0.097 | µg/kg wet | 2.18 | | 89.9 | | 66-139 | | | |
| 4:2 Fluorotelomersulfonic acid (4:2FTS A) | 1.74 | 0.43 | 0.080 | µg/kg wet | 2.04 | | 85.2 | | 62-145 | | | |
| Perfluorodecanesulfonic acid (PFDS) | 1.94 | 0.43 | 0.10 | µg/kg wet | 2.10 | | 92.1 | | 59-134 | | | |
| Perfluorooctanesulfonamide (FOSA) | 1.86 | 0.43 | 0.084 | µg/kg wet | 2.18 | | 85.3 | | 67-137 | | | |
| Perfluorononanesulfonic acid (PFNS) | 1.62 | 0.43 | 0.12 | µg/kg wet | 2.09 | | 77.3 | | 69-125 | | | |
| Perfluoro-1-hexanesulfonamide (FHxSA) | 1.98 | 0.43 | 0.13 | µg/kg wet | 2.18 | | 90.8 | | 51.4-142 | | | |
| Perfluoro-1-butanesulfonamide (FBSA) | 1.96 | 0.43 | 0.14 | µg/kg wet | 2.18 | | 90.2 | | 53.5-129 | | | |
| Perfluorohexanesulfonic acid (PFHxS) | 1.64 | 0.43 | 0.069 | µg/kg wet | 2.00 | | 82.3 | | 67-130 | | | |
| Perfluoro-4-oxapentanoic acid (PFMPA) | 1.78 | 0.43 | 0.082 | µg/kg wet | 2.18 | | 81.5 | | 57.8-127 | | | |
| Perfluoro-5-oxahexanoic acid (PFMBA) | 1.78 | 0.43 | 0.080 | µg/kg wet | 2.18 | | 81.6 | | 56.5-132 | | | |
| 6:2 Fluorotelomersulfonic acid (6:2FTS A) | 2.00 | 0.43 | 0.099 | µg/kg wet | 2.07 | | 96.5 | | 64-140 | | | |
| Perfluoropetanesulfonic acid (PFPeS) | 1.74 | 0.43 | 0.063 | µg/kg wet | 2.05 | | 85.0 | | 73-123 | | | |
| Perfluoroundecanoic acid (PFUnA) | 1.85 | 0.43 | 0.079 | µg/kg wet | 2.18 | | 85.0 | | 64-136 | | | |
| Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | 1.68 | 0.43 | 0.067 | µg/kg wet | 2.18 | | 77.3 | | 54.5-128 | | | |
| Perfluoroheptanoic acid (PFHpA) | 1.77 | 0.43 | 0.062 | µg/kg wet | 2.18 | | 81.4 | | 71-131 | | | |
| Perfluorooctanoic acid (PFOA) | 1.83 | 0.43 | 0.12 | µg/kg wet | 2.18 | | 84.0 | | 69-133 | | | |
| Perfluorooctanesulfonic acid (PFOS) | 1.62 | 0.43 | 0.058 | µg/kg wet | 2.01 | | 80.2 | | 68-136 | | | |
| Perfluorononanoic acid (PFNA) | 1.92 | 0.43 | 0.071 | µg/kg wet | 2.18 | | 88.0 | | 72-129 | | | |
| **Batch B319521 - SOP 454-PFAAS** | | | | | | | | | | | | |
| **Blank (B319521-BLK1)** | | | | | Prepared: 10/18/22 Analyzed: 10/22/22 | | | | | | | |
| Perfluorobutanoic acid (PFBA) | ND | 1.8 | 0.67 | ng/L | | | | | | | | |
| Perfluorobutanesulfonic acid (PFBS) | ND | 1.8 | 0.25 | ng/L | | | | | | | | |
| Perfluoropentanoic acid (PFPeA) | ND | 1.8 | 0.36 | ng/L | | | | | | | | |
| Perfluorohexanoic acid (PFHxA) | ND | 1.8 | 0.35 | ng/L | | | | | | | | |
| 11Cl-PF3OUdS (F53B Major) | ND | 1.8 | 0.58 | ng/L | | | | | | | | |
| 9Cl-PF3ONS (F53B Minor) | ND | 1.8 | 0.35 | ng/L | | | | | | | | |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | ND | 1.8 | 0.32 | ng/L | | | | | | | | |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | ND | 1.8 | 0.22 | ng/L | | | | | | | | |
| 8:2 Fluorotelomersulfonic acid (8:2FTS A) | ND | 1.8 | 0.55 | ng/L | | | | | | | | |
| Perfluorodecanoic acid (PFDA) | ND | 1.8 | 0.44 | ng/L | | | | | | | | |
| Perfluorododecanoic acid (PFDoA) | ND | 1.8 | 0.40 | ng/L | | | | | | | | |
| Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | ND | 1.8 | 0.21 | ng/L | | | | | | | | |
| Perfluoroheptanesulfonic acid (PFHpS) | ND | 1.8 | 0.85 | ng/L | | | | | | | | |
| N-EtFOSAA | ND | 1.8 | 0.57 | ng/L | | | | | | | | |

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by - LC/MS-MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B318791 - SOP 465-PFAAS** | | | | | | | | | | | | |
| **Matrix Spike Dup (B318791-MSD1)** | | **Source: 22J0310-11** | | | Prepared: 10/17/22 Analyzed: 10/18/22 | | | | | | | |
| **Perfluorooctanesulfonic acid (PFOS)** | 10.8 | 0.51 | 0.069 | µg/kg dry | 2.36 | 6.84 | **169** | * | 68-136 | 3.21 | 30 | MS-12 |
| Perfluorononanoic acid (PFNA) | 2.73 | 0.51 | 0.083 | µg/kg dry | 2.55 | ND | 107 | | 72-129 | 4.16 | 30 | J+, MSH |
| **Batch B319211 - SOP 465-PFAAS** | | | | | | | | | | | | |
| **Blank (B319211-BLK1)** | | | | | Prepared: 10/17/22 Analyzed: 10/21/22 | | | | | | | |
| Perfluorobutanoic acid (PFBA) | ND | 0.41 | 0.055 | µg/kg wet | | | | | | | | |
| Perfluorobutanesulfonic acid (PFBS) | ND | 0.41 | 0.063 | µg/kg wet | | | | | | | | |
| Perfluoropentanoic acid (PFPeA) | ND | 0.41 | 0.063 | µg/kg wet | | | | | | | | |
| Perfluorohexanoic acid (PFHxA) | ND | 0.41 | 0.077 | µg/kg wet | | | | | | | | |
| 11Cl-PF3OUdS (F53B Major) | ND | 0.41 | 0.12 | µg/kg wet | | | | | | | | |
| 9Cl-PF3ONS (F53B Minor) | ND | 0.41 | 0.10 | µg/kg wet | | | | | | | | |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | ND | 0.41 | 0.13 | µg/kg wet | | | | | | | | |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | ND | 0.41 | 0.20 | µg/kg wet | | | | | | | | |
| 8:2 Fluorotelomersulfonic acid (8:2FTS A) | ND | 0.41 | 0.11 | µg/kg wet | | | | | | | | |
| Perfluorodecanoic acid (PFDA) | ND | 0.41 | 0.053 | µg/kg wet | | | | | | | | |
| Perfluorododecanoic acid (PFDoA) | ND | 0.41 | 0.063 | µg/kg wet | | | | | | | | |
| Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | ND | 0.41 | 0.068 | µg/kg wet | | | | | | | | |
| Perfluoroheptanesulfonic acid (PFHpS) | ND | 0.41 | 0.12 | µg/kg wet | | | | | | | | |
| N-EtFOSAA | ND | 0.41 | 0.12 | µg/kg wet | | | | | | | | |
| N-MeFOSAA | ND | 0.41 | 0.075 | µg/kg wet | | | | | | | | |
| Perfluorotetradecanoic acid (PFTA) | ND | 0.41 | 0.079 | µg/kg wet | | | | | | | | |
| Perfluorotridecanoic acid (PFTrDA) | ND | 0.41 | 0.093 | µg/kg wet | | | | | | | | |
| 4:2 Fluorotelomersulfonic acid (4:2FTS A) | ND | 0.41 | 0.076 | µg/kg wet | | | | | | | | |
| Perfluorodecanesulfonic acid (PFDS) | ND | 0.41 | 0.096 | µg/kg wet | | | | | | | | |
| Perfluorooctanesulfonamide (FOSA) | ND | 0.41 | 0.081 | µg/kg wet | | | | | | | | |
| Perfluorononanesulfonic acid (PFNS) | ND | 0.41 | 0.11 | µg/kg wet | | | | | | | | |
| Perfluoro-1-hexanesulfonamide (FHxSA) | ND | 0.41 | 0.12 | µg/kg wet | | | | | | | | |
| Perfluoro-1-butanesulfonamide (FBSA) | ND | 0.41 | 0.13 | µg/kg wet | | | | | | | | |
| Perfluorohexanesulfonic acid (PFHxS) | ND | 0.41 | 0.066 | µg/kg wet | | | | | | | | |
| Perfluoro-4-oxapentanoic acid (PFMPA) | ND | 0.41 | 0.078 | µg/kg wet | | | | | | | | |
| Perfluoro-5-oxahexanoic acid (PFMBA) | ND | 0.41 | 0.076 | µg/kg wet | | | | | | | | |
| 6:2 Fluorotelomersulfonic acid (6:2FTS A) | ND | 0.41 | 0.095 | µg/kg wet | | | | | | | | |
| Perfluoropetanesulfonic acid (PFPeS) | ND | 0.41 | 0.061 | µg/kg wet | | | | | | | | |
| Perfluoroundecanoic acid (PFUnA) | ND | 0.41 | 0.075 | µg/kg wet | | | | | | | | |
| Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | ND | 0.41 | 0.064 | µg/kg wet | | | | | | | | |
| Perfluoroheptanoic acid (PFHpA) | ND | 0.41 | 0.060 | µg/kg wet | | | | | | | | |
| Perfluorooctanoic acid (PFOA) | ND | 0.41 | 0.12 | µg/kg wet | | | | | | | | |
| Perfluorooctanesulfonic acid (PFOS) | ND | 0.41 | 0.056 | µg/kg wet | | | | | | | | |
| Perfluorononanoic acid (PFNA) | ND | 0.41 | 0.068 | µg/kg wet | | | | | | | | |
| **LCS (B319211-BS1)** | | | | | Prepared: 10/17/22 Analyzed: 10/21/22 | | | | | | | |
| Perfluorobutanoic acid (PFBA) | 1.90 | 0.43 | 0.058 | µg/kg wet | 2.18 | | 87.2 | | 71-135 | | | |
| Perfluorobutanesulfonic acid (PFBS) | 1.63 | 0.43 | 0.066 | µg/kg wet | 1.93 | | 84.7 | | 72-128 | | | |
| Perfluoropentanoic acid (PFPeA) | 1.86 | 0.43 | 0.066 | µg/kg wet | 2.18 | | 85.2 | | 69-132 | | | |
| Perfluorohexanoic acid (PFHxA) | 1.90 | 0.43 | 0.081 | µg/kg wet | 2.18 | | 87.1 | | 70-132 | | | |
| 11Cl-PF3OUdS (F53B Major) | 1.45 | 0.43 | 0.12 | µg/kg wet | 2.05 | | 70.6 | | 41.8-128 | | | |
| 9Cl-PF3ONS (F53B Minor) | 1.44 | 0.43 | 0.11 | µg/kg wet | 2.03 | | 70.8 | | 51.1-141 | | | |

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by - LC/MS-MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B318791 - SOP 465-PFAAS** | | | | | | | | | | | | |
| **Matrix Spike (B318791-MS1)** | | **Source: 22J0310-11** | | | Prepared: 10/17/22 Analyzed: 10/18/22 | | | | | | | |
| Perfluoro-1-hexanesulfonamide (FHxSA) | 2.71 | 0.50 | 0.15 | µg/kg dry | 2.50 | ND | 108 | | 18.9-162 | | | |
| Perfluoro-1-butanesulfonamide (FBSA) | 2.65 | 0.50 | 0.16 | µg/kg dry | 2.50 | ND | 106 | | 49.8-135 | | | |
| Perfluorohexanesulfonic acid (PFHxS) | 2.33 | 0.50 | 0.079 | µg/kg dry | 2.29 | ND | 102 | | 67-130 | | | |
| Perfluoro-4-oxapentanoic acid (PFMPA) | 2.41 | 0.50 | 0.094 | µg/kg dry | 2.50 | ND | 96.5 | | 62-155 | | | |
| Perfluoro-5-oxahexanoic acid (PFMBA) | 2.25 | 0.50 | 0.091 | µg/kg dry | 2.50 | ND | 90.1 | | 52.1-148 | | | |
| 6:2 Fluorotelomersulfonic acid (6:2FTS A) | 2.18 | 0.50 | 0.11 | µg/kg dry | 2.38 | ND | 91.7 | | 64-140 | | | |
| Perfluoropetanesulfonic acid (PFPeS) | 2.46 | 0.50 | 0.073 | µg/kg dry | 2.35 | ND | 104 | | 73-123 | | | |
| Perfluoroundecanoic acid (PFUnA) | 2.77 | 0.50 | 0.090 | µg/kg dry | 2.50 | 0.0919 | 107 | | 64-136 | | | |
| Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | 2.89 | 0.50 | 0.077 | µg/kg dry | 2.50 | ND | 115 | | 54.6-133 | | | |
| Perfluoroheptanoic acid (PFHpA) | 2.89 | 0.50 | 0.072 | µg/kg dry | 2.50 | ND | 115 | | 71-131 | | | |
| Perfluorooctanoic acid (PFOA) | 2.59 | 0.50 | 0.14 | µg/kg dry | 2.50 | 0.192 | 95.9 | | 69-133 | | | |
| **Perfluorooctanesulfonic acid (PFOS)** | 10.5 | 0.50 | 0.067 | µg/kg dry | 2.31 | 6.84 | **158** | * | 68-136 | J+, MSH | | MS-12 |
| Perfluorononanoic acid (PFNA) | 2.62 | 0.50 | 0.081 | µg/kg dry | 2.50 | ND | 105 | | 72-129 | | | |
| **Matrix Spike Dup (B318791-MSD1)** | | **Source: 22J0310-11** | | | Prepared: 10/17/22 Analyzed: 10/18/22 | | | | | | | |
| Perfluorobutanoic acid (PFBA) | 2.72 | 0.51 | 0.067 | µg/kg dry | 2.55 | ND | 106 | | 71-135 | 2.84 | 30 | |
| Perfluorobutanesulfonic acid (PFBS) | 2.33 | 0.51 | 0.078 | µg/kg dry | 2.26 | ND | 103 | | 72-128 | 3.21 | 30 | |
| Perfluoropentanoic acid (PFPeA) | 2.75 | 0.51 | 0.078 | µg/kg dry | 2.55 | ND | 108 | | 69-132 | 5.23 | 30 | |
| Perfluorohexanoic acid (PFHxA) | 2.71 | 0.51 | 0.094 | µg/kg dry | 2.55 | ND | 106 | | 70-132 | 2.30 | 30 | |
| 11Cl-PF3OUdS (F53B Major) | 1.88 | 0.51 | 0.14 | µg/kg dry | 2.41 | ND | 78.2 | | 4.02-158 | 3.31 | 30 | |
| 9Cl-PF3ONS (F53B Minor) | 2.09 | 0.51 | 0.13 | µg/kg dry | 2.38 | ND | 87.8 | | 52.5-150 | 1.45 | 30 | sample result ND, no quals |
| **4,8-dioxa-3H-perfluorononanoic acid (ADONA)** | 4.25 | 0.51 | 0.16 | µg/kg dry | 2.41 | ND | **176** | * | 50.7-124 | 5.97 | 30 | MS-12 |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | 2.72 | 0.51 | 0.24 | µg/kg dry | 2.55 | ND | 107 | | 29.2-146 | 14.3 | 30 | |
| 8:2 Fluorotelomersulfonic acid (8:2FTS A) | 2.64 | 0.51 | 0.13 | µg/kg dry | 2.45 | ND | 108 | | 65-137 | 1.73 | 30 | |
| Perfluorodecanoic acid (PFDA) | 2.77 | 0.51 | 0.065 | µg/kg dry | 2.55 | 0.104 | 104 | | 69-133 | 3.45 | 30 | |
| Perfluorododecanoic acid (PFDoA) | 3.13 | 0.51 | 0.078 | µg/kg dry | 2.55 | 0.209 | 114 | | 69-135 | 8.11 | 30 | |
| Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | 2.12 | 0.51 | 0.083 | µg/kg dry | 2.27 | ND | 93.4 | | 60.7-135 | 7.39 | 30 | |
| Perfluoroheptanesulfonic acid (PFHpS) | 2.62 | 0.51 | 0.15 | µg/kg dry | 2.44 | ND | 107 | | 70-132 | 3.43 | 30 | |
| N-EtFOSAA | 3.04 | 0.51 | 0.14 | µg/kg dry | 2.55 | 0.244 | 109 | | 61-139 | 4.70 | 30 | |
| N-MeFOSAA | 3.09 | 0.51 | 0.092 | µg/kg dry | 2.55 | ND | 121 | | 63-144 | 3.15 | 30 | |
| Perfluorotetradecanoic acid (PFTA) | 2.77 | 0.51 | 0.097 | µg/kg dry | 2.55 | 0.0993 | 105 | | 69-133 | 2.82 | 30 | |
| Perfluorotridecanoic acid (PFTrDA) | 2.97 | 0.51 | 0.11 | µg/kg dry | 2.55 | 0.206 | 108 | | 66-139 | 4.13 | 30 | |
| 4:2 Fluorotelomersulfonic acid (4:2FTS A) | 2.50 | 0.51 | 0.093 | µg/kg dry | 2.39 | ND | 105 | | 62-145 | 1.31 | 30 | |
| Perfluorodecanesulfonic acid (PFDS) | 2.29 | 0.51 | 0.12 | µg/kg dry | 2.46 | ND | 92.9 | | 59-134 | 3.52 | 30 | |
| Perfluorooctanesulfonamide (FOSA) | 4.14 | 0.51 | 0.099 | µg/kg dry | 2.55 | 1.32 | 110 | | 67-137 | 4.93 | 30 | |
| Perfluorononanesulfonic acid (PFNS) | 2.09 | 0.51 | 0.14 | µg/kg dry | 2.45 | ND | 85.3 | | 69-125 | 11.9 | 30 | |
| Perfluoro-1-hexanesulfonamide (FHxSA) | 2.87 | 0.51 | 0.15 | µg/kg dry | 2.55 | ND | 112 | | 18.9-162 | 5.81 | 30 | |
| Perfluoro-1-butanesulfonamide (FBSA) | 2.85 | 0.51 | 0.16 | µg/kg dry | 2.55 | ND | 111 | | 49.8-135 | 7.02 | 30 | |
| Perfluorohexanesulfonic acid (PFHxS) | 2.37 | 0.51 | 0.081 | µg/kg dry | 2.34 | ND | 101 | | 67-130 | 1.53 | 30 | |
| Perfluoro-4-oxapentanoic acid (PFMPA) | 2.51 | 0.51 | 0.096 | µg/kg dry | 2.55 | ND | 98.1 | | 62-155 | 3.72 | 30 | |
| Perfluoro-5-oxahexanoic acid (PFMBA) | 2.31 | 0.51 | 0.093 | µg/kg dry | 2.55 | ND | 90.2 | | 52.1-148 | 2.26 | 30 | |
| 6:2 Fluorotelomersulfonic acid (6:2FTS A) | 2.69 | 0.51 | 0.12 | µg/kg dry | 2.43 | ND | 111 | | 64-140 | 21.1 | 30 | |
| Perfluoropetanesulfonic acid (PFPeS) | 2.39 | 0.51 | 0.074 | µg/kg dry | 2.40 | ND | 99.6 | | 73-123 | 2.71 | 30 | |
| Perfluoroundecanoic acid (PFUnA) | 2.81 | 0.51 | 0.092 | µg/kg dry | 2.55 | ND | 110 | | 64-136 | 1.51 | 30 | |
| Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | 2.93 | 0.51 | 0.079 | µg/kg dry | 2.55 | ND | 115 | | 54.6-133 | 1.36 | 30 | |
| Perfluoroheptanoic acid (PFHpA) | 2.97 | 0.51 | 0.073 | µg/kg dry | 2.55 | ND | 116 | | 71-131 | 2.85 | 30 | |
| Perfluorooctanoic acid (PFOA) | 2.75 | 0.51 | 0.14 | µg/kg dry | 2.55 | 0.192 | 100 | | 69-133 | 6.04 | 30 | |

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by - LC/MS-MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B318791 - SOP 465-PFAAS** | | | | | | | | | | | | |
| **LCS (B318791-BS1)** | | | | | Prepared: 10/17/22 Analyzed: 10/18/22 | | | | | | | |
| Perfluorododecanoic acid (PFDoA) | 2.00 | 0.42 | 0.065 | µg/kg wet | 2.13 | | 94.0 | | 69-135 | | | |
| Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | 1.52 | 0.42 | 0.069 | µg/kg wet | 1.89 | | 80.2 | | 56.7-133 | | | |
| Perfluoroheptanesulfonic acid (PFHpS) | 1.89 | 0.42 | 0.13 | µg/kg wet | 2.03 | | 93.2 | | 70-132 | | | |
| N-EtFOSAA | 2.07 | 0.42 | 0.12 | µg/kg wet | 2.13 | | 97.3 | | 61-139 | | | |
| N-MeFOSAA | 2.20 | 0.42 | 0.077 | µg/kg wet | 2.13 | | 103 | | 63-144 | | | |
| Perfluorotetradecanoic acid (PFTA) | 1.96 | 0.42 | 0.080 | µg/kg wet | 2.13 | | 92.3 | | 69-133 | | | |
| Perfluorotridecanoic acid (PFTrDA) | 2.04 | 0.42 | 0.095 | µg/kg wet | 2.13 | | 96.1 | | 66-139 | | | |
| 4:2 Fluorotelomersulfonic acid (4:2FTS A) | 1.87 | 0.42 | 0.078 | µg/kg wet | 1.99 | | 93.7 | | 62-145 | | | |
| Perfluorodecanesulfonic acid (PFDS) | 1.55 | 0.42 | 0.098 | µg/kg wet | 2.05 | | 75.7 | | 59-134 | | | |
| Perfluorooctanesulfonamide (FOSA) | 1.92 | 0.42 | 0.082 | µg/kg wet | 2.13 | | 90.5 | | 67-137 | | | |
| Perfluorononanesulfonic acid (PFNS) | 1.64 | 0.42 | 0.11 | µg/kg wet | 2.04 | | 80.1 | | 69-125 | | | |
| Perfluoro-1-hexanesulfonamide (FHxSA) | 2.08 | 0.42 | 0.13 | µg/kg wet | 2.13 | | 98.0 | | 51.4-142 | | | |
| Perfluoro-1-butanesulfonamide (FBSA) | 1.89 | 0.42 | 0.13 | µg/kg wet | 2.13 | | 88.9 | | 53.5-129 | | | |
| Perfluorohexanesulfonic acid (PFHxS) | 1.65 | 0.42 | 0.067 | µg/kg wet | 1.95 | | 84.9 | | 67-130 | | | |
| Perfluoro-4-oxapentanoic acid (PFMPA) | 1.75 | 0.42 | 0.080 | µg/kg wet | 2.13 | | 82.4 | | 57.8-127 | | | |
| Perfluoro-5-oxahexanoic acid (PFMBA) | 1.61 | 0.42 | 0.078 | µg/kg wet | 2.13 | | 75.9 | | 56.5-132 | | | |
| 6:2 Fluorotelomersulfonic acid (6:2FTS A) | 1.99 | 0.42 | 0.096 | µg/kg wet | 2.02 | | 98.3 | | 64-140 | | | |
| Perfluoropetanesulfonic acid (PFPeS) | 1.71 | 0.42 | 0.062 | µg/kg wet | 2.00 | | 85.6 | | 73-123 | | | |
| Perfluoroundecanoic acid (PFUnA) | 1.83 | 0.42 | 0.077 | µg/kg wet | 2.13 | | 85.9 | | 64-136 | | | |
| Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | 2.11 | 0.42 | 0.065 | µg/kg wet | 2.13 | | 99.2 | | 54.5-128 | | | |
| Perfluoroheptanoic acid (PFHpA) | 2.02 | 0.42 | 0.061 | µg/kg wet | 2.13 | | 95.2 | | 71-131 | | | |
| Perfluorooctanoic acid (PFOA) | 1.86 | 0.42 | 0.12 | µg/kg wet | 2.13 | | 87.3 | | 69-133 | | | |
| Perfluorooctanesulfonic acid (PFOS) | 1.84 | 0.42 | 0.057 | µg/kg wet | 1.96 | | 93.6 | | 68-136 | | | |
| Perfluorononanoic acid (PFNA) | 1.86 | 0.42 | 0.069 | µg/kg wet | 2.13 | | 87.6 | | 72-129 | | | |
| **Matrix Spike (B318791-MS1)** | | **Source: 22J0310-11** | | | Prepared: 10/17/22 Analyzed: 10/18/22 | | | | | | | |
| Perfluorobutanoic acid (PFBA) | 2.64 | 0.50 | 0.066 | µg/kg dry | 2.50 | ND | 106 | | 71-135 | | | |
| Perfluorobutanesulfonic acid (PFBS) | 2.26 | 0.50 | 0.076 | µg/kg dry | 2.21 | ND | 102 | | 72-128 | | | |
| Perfluoropentanoic acid (PFPeA) | 2.61 | 0.50 | 0.076 | µg/kg dry | 2.50 | ND | 104 | | 69-132 | | | |
| Perfluorohexanoic acid (PFHxA) | 2.65 | 0.50 | 0.093 | µg/kg dry | 2.50 | ND | 106 | | 70-132 | | | |
| 11Cl-PF3OUdS (F53B Major) | 1.95 | 0.50 | 0.14 | µg/kg dry | 2.36 | ND | 82.5 | | 4.02-158 | | | |
| 9Cl-PF3ONS (F53B Minor) | 2.06 | 0.50 | 0.12 | µg/kg dry | 2.33 | ND | 88.3 | | 52.5-150 | | | |
| **4,8-dioxa-3H-perfluorononanoic acid (ADONA)** | 4.00 | 0.50 | 0.16 | µg/kg dry | 2.36 | ND | **170** | * | 50.7-124 | sample result ND, no quals | | MS-12 |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | 2.36 | 0.50 | 0.24 | µg/kg dry | 2.50 | ND | 94.3 | | 29.2-146 | | | |
| 8:2 Fluorotelomersulfonic acid (8:2FTS A) | 2.59 | 0.50 | 0.13 | µg/kg dry | 2.40 | ND | 108 | | 65-137 | | | |
| Perfluorodecanoic acid (PFDA) | 2.67 | 0.50 | 0.064 | µg/kg dry | 2.50 | 0.104 | 103 | | 69-133 | | | |
| Perfluorododecanoic acid (PFDoA) | 2.88 | 0.50 | 0.076 | µg/kg dry | 2.50 | 0.209 | 107 | | 69-135 | | | |
| Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | 1.97 | 0.50 | 0.081 | µg/kg dry | 2.23 | ND | 88.5 | | 60.7-135 | | | |
| Perfluoroheptanesulfonic acid (PFHpS) | 2.53 | 0.50 | 0.15 | µg/kg dry | 2.39 | ND | 106 | | 70-132 | | | |
| N-EtFOSAA | 2.90 | 0.50 | 0.14 | µg/kg dry | 2.50 | 0.244 | 106 | | 61-139 | | | |
| N-MeFOSAA | 3.19 | 0.50 | 0.090 | µg/kg dry | 2.50 | ND | 127 | | 63-144 | | | |
| Perfluorotetradecanoic acid (PFTA) | 2.69 | 0.50 | 0.095 | µg/kg dry | 2.50 | 0.0993 | 104 | | 69-133 | | | |
| Perfluorotridecanoic acid (PFTrDA) | 2.85 | 0.50 | 0.11 | µg/kg dry | 2.50 | 0.206 | 106 | | 66-139 | | | |
| 4:2 Fluorotelomersulfonic acid (4:2FTS A) | 2.47 | 0.50 | 0.091 | µg/kg dry | 2.34 | ND | 105 | | 62-145 | | | |
| Perfluorodecanesulfonic acid (PFDS) | 2.21 | 0.50 | 0.12 | µg/kg dry | 2.41 | ND | 91.5 | | 59-134 | | | |
| Perfluorooctanesulfonamide (FOSA) | 3.94 | 0.50 | 0.097 | µg/kg dry | 2.50 | 1.32 | 105 | | 67-137 | | | |
| Perfluorononanesulfonic acid (PFNS) | 2.36 | 0.50 | 0.13 | µg/kg dry | 2.40 | ND | 98.0 | | 69-125 | | | |

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by - LC/MS-MS - Quality Control**

| Analyte | Result | Reporting Limit | DL | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B318791 - SOP 465-PFAAS** | | | | | | | | | | | | |
| **Blank (B318791-BLK1)** | | | | | Prepared: 10/17/22 Analyzed: 10/18/22 | | | | | | | |
| Perfluorobutanoic acid (PFBA) | ND | 0.42 | 0.057 | µg/kg wet | | | | | | | | |
| Perfluorobutanesulfonic acid (PFBS) | ND | 0.42 | 0.065 | µg/kg wet | | | | | | | | |
| Perfluoropentanoic acid (PFPeA) | ND | 0.42 | 0.065 | µg/kg wet | | | | | | | | |
| Perfluorohexanoic acid (PFHxA) | ND | 0.42 | 0.079 | µg/kg wet | | | | | | | | |
| 11Cl-PF3OUdS (F53B Major) | ND | 0.42 | 0.12 | µg/kg wet | | | | | | | | |
| 9Cl-PF3ONS (F53B Minor) | ND | 0.42 | 0.11 | µg/kg wet | | | | | | | | |
| 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | ND | 0.42 | 0.14 | µg/kg wet | | | | | | | | |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | ND | 0.42 | 0.20 | µg/kg wet | | | | | | | | |
| 8:2 Fluorotelomersulfonic acid (8:2FTS A) | ND | 0.42 | 0.11 | µg/kg wet | | | | | | | | |
| Perfluorodecanoic acid (PFDA) | ND | 0.42 | 0.055 | µg/kg wet | | | | | | | | |
| Perfluorododecanoic acid (PFDoA) | ND | 0.42 | 0.065 | µg/kg wet | | | | | | | | |
| Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | ND | 0.42 | 0.070 | µg/kg wet | | | | | | | | |
| Perfluoroheptanesulfonic acid (PFHpS) | ND | 0.42 | 0.13 | µg/kg wet | | | | | | | | |
| N-EtFOSAA | ND | 0.42 | 0.12 | µg/kg wet | | | | | | | | |
| N-MeFOSAA | ND | 0.42 | 0.077 | µg/kg wet | | | | | | | | |
| Perfluorotetradecanoic acid (PFTA) | ND | 0.42 | 0.081 | µg/kg wet | | | | | | | | |
| Perfluorotridecanoic acid (PFTrDA) | ND | 0.42 | 0.095 | µg/kg wet | | | | | | | | |
| 4:2 Fluorotelomersulfonic acid (4:2FTS A) | ND | 0.42 | 0.078 | µg/kg wet | | | | | | | | |
| Perfluorodecanesulfonic acid (PFDS) | ND | 0.42 | 0.099 | µg/kg wet | | | | | | | | |
| Perfluorooctanesulfonamide (FOSA) | ND | 0.42 | 0.083 | µg/kg wet | | | | | | | | |
| Perfluorononanesulfonic acid (PFNS) | ND | 0.42 | 0.12 | µg/kg wet | | | | | | | | |
| Perfluoro-1-hexanesulfonamide (FHxSA) | ND | 0.42 | 0.13 | µg/kg wet | | | | | | | | |
| Perfluoro-1-butanesulfonamide (FBSA) | ND | 0.42 | 0.13 | µg/kg wet | | | | | | | | |
| Perfluorohexanesulfonic acid (PFHxS) | ND | 0.42 | 0.068 | µg/kg wet | | | | | | | | |
| Perfluoro-4-oxapentanoic acid (PFMPA) | ND | 0.42 | 0.080 | µg/kg wet | | | | | | | | |
| Perfluoro-5-oxahexanoic acid (PFMBA) | ND | 0.42 | 0.078 | µg/kg wet | | | | | | | | |
| 6:2 Fluorotelomersulfonic acid (6:2FTS A) | ND | 0.42 | 0.097 | µg/kg wet | | | | | | | | |
| Perfluoropetanesulfonic acid (PFPeS) | ND | 0.42 | 0.062 | µg/kg wet | | | | | | | | |
| Perfluoroundecanoic acid (PFUnA) | ND | 0.42 | 0.077 | µg/kg wet | | | | | | | | |
| Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | ND | 0.42 | 0.066 | µg/kg wet | | | | | | | | |
| Perfluoroheptanoic acid (PFHpA) | ND | 0.42 | 0.061 | µg/kg wet | | | | | | | | |
| Perfluorooctanoic acid (PFOA) | ND | 0.42 | 0.12 | µg/kg wet | | | | | | | | |
| Perfluorooctanesulfonic acid (PFOS) | ND | 0.42 | 0.058 | µg/kg wet | | | | | | | | |
| Perfluorononanoic acid (PFNA) | ND | 0.42 | 0.070 | µg/kg wet | | | | | | | | |
| **LCS (B318791-BS1)** | | | | | Prepared: 10/17/22 Analyzed: 10/18/22 | | | | | | | |
| Perfluorobutanoic acid (PFBA) | 1.91 | 0.42 | 0.056 | µg/kg wet | 2.13 | | 90.0 | | 71-135 | | | |
| Perfluorobutanesulfonic acid (PFBS) | 1.62 | 0.42 | 0.065 | µg/kg wet | 1.88 | | 86.1 | | 72-128 | | | |
| Perfluoropentanoic acid (PFPeA) | 1.89 | 0.42 | 0.065 | µg/kg wet | 2.13 | | 89.0 | | 69-132 | | | |
| Perfluorohexanoic acid (PFHxA) | 1.93 | 0.42 | 0.079 | µg/kg wet | 2.13 | | 90.7 | | 70-132 | | | |
| 11Cl-PF3OUdS (F53B Major) | 1.34 | 0.42 | 0.12 | µg/kg wet | 2.00 | | 66.8 | | 41.8-128 | | | |
| 9Cl-PF3ONS (F53B Minor) | 1.44 | 0.42 | 0.11 | µg/kg wet | 1.98 | | 72.8 | | 51.1-141 | | | |
| **4,8-dioxa-3H-perfluorononanoic acid (ADONA)** | 3.05 | 0.42 | 0.13 | µg/kg wet | 2.00 | | **152** | * | 55.2-122 | Sample results ND, no quals | | L-01 |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | 1.67 | 0.42 | 0.20 | µg/kg wet | 2.13 | | 78.4 | | 27.6-137 | | | |
| 8:2 Fluorotelomersulfonic acid (8:2FTS A) | 1.89 | 0.42 | 0.11 | µg/kg wet | 2.04 | | 92.6 | | 65-137 | | | |
| Perfluorodecanoic acid (PFDA) | 1.80 | 0.42 | 0.054 | µg/kg wet | 2.13 | | 84.8 | | 69-133 | | | |

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**INTERNAL STANDARD AREA AND RT SUMMARY**

**SOP-454 PFAS**

| Internal Standard | Response | RT | Reference Response | Reference RT | Area % | Area % Limits | RT Diff | RT Diff Limit | Q |
|---|---|---|---|---|---|---|---|---|---|
| **LCS (B319521-BS1 )** | | | Lab File ID: B319521-BS1.d | | | Analyzed: 10/22/22 01:08 | | | |
| M8FOSA | 233171.5 | 3.996567 | 328,138.00 | 3.996567 | 71 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-4:2FTS | 165570.2 | 2.4146 | 189,245.00 | 2.4064 | 87 | 50 - 150 | 0.0082 | +/-0.50 | |
| M2PFTA | 791201 | 4.27305 | 1,030,059.00 | 4.281116 | 77 | 50 - 150 | -0.0081 | +/-0.50 | |
| M2-8:2FTS | 175117 | 3.76295 | 107,857.00 | 3.76295 | 162 | 50 - 150 | 0.0000 | +/-0.50 | * |
| MPFBA | 477882.2 | 1.04185 | 470,407.00 | 1.04185 | 102 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3HFPO-DA | 100037.4 | 2.749283 | 121,363.00 | 2.749283 | 82 | 50 - 150 | 0.0000 | +/-0.50 | |
| M6PFDA | 622654 | 3.763483 | 703,999.00 | 3.763483 | 88 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3PFBS | 123592 | 1.83695 | 128,529.00 | 1.83695 | 96 | 50 - 150 | 0.0000 | +/-0.50 | |
| M7PFUnA | 604505.6 | 3.906067 | 697,439.00 | 3.906067 | 87 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-6:2FTS | 74403.98 | 3.41245 | 79,376.00 | 3.41245 | 94 | 50 - 150 | 0.0000 | +/-0.50 | |
| M5PFPeA | 402200.2 | 1.6652 | 407,535.00 | 1.6652 | 99 | 50 - 150 | 0.0000 | +/-0.50 | |
| M5PFHxA | 751918.8 | 2.498417 | 794,423.00 | 2.490217 | 95 | 50 - 150 | 0.0082 | +/-0.50 | |
| M3PFHxS | 117658.3 | 3.177667 | 129,092.00 | 3.169583 | 91 | 50 - 150 | 0.0081 | +/-0.50 | |
| M4PFHpA | 868593.7 | 3.138483 | 955,392.00 | 3.1304 | 91 | 50 - 150 | 0.0081 | +/-0.50 | |
| M8PFOA | 875265.4 | 3.421183 | 963,117.00 | 3.421183 | 91 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOS | 105992.8 | 3.620217 | 119,440.00 | 3.620217 | 89 | 50 - 150 | 0.0000 | +/-0.50 | |
| M9PFNA | 647654.9 | 3.613267 | 728,798.00 | 3.613267 | 89 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFDoA | 506555.4 | 4.040683 | 640,609.00 | 4.040683 | 79 | 50 - 150 | 0.0000 | +/-0.50 | |
| d5-NEtFOSAA | 166602.9 | 3.913533 | 187,724.00 | 3.913533 | 89 | 50 - 150 | 0.0000 | +/-0.50 | |
| d3-NMeFOSAA | 204768.3 | 3.84175 | 221,800.00 | 3.84175 | 92 | 50 - 150 | 0.0000 | +/-0.50 | |

blank results, no quals

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**INTERNAL STANDARD AREA AND RT SUMMARY**

**SOP-454 PFAS**

| Internal Standard | Response | RT | Reference Response | Reference RT | Area % | Area % Limits | RT Diff | RT Diff Limit | Q | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (B319521-BLK1 )** | | | Lab File ID: B319521-BLK1.d | | | Analyzed: 10/22/22 01:22 | | | | |
| M8FOSA | 186540.3 | 3.996567 | 328,138.00 | 3.996567 | 57 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M2-4:2FTS | 143104.2 | 2.4146 | 189,245.00 | 2.4064 | 76 | 50 - 150 | 0.0082 | +/-0.50 | | |
| M2PFTA | 335359.6 | 4.27305 | 1,030,059.00 | 4.281116 | 33 | 50 - 150 | -0.0081 | +/-0.50 | * | field blank, no quals |
| M2-8:2FTS | 109006 | 3.76295 | 107,857.00 | 3.76295 | 101 | 50 - 150 | 0.0000 | +/-0.50 | | |
| MPFBA | 400195.3 | 1.04185 | 470,407.00 | 1.04185 | 85 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M3HFPO-DA | 93230.78 | 2.749283 | 121,363.00 | 2.749283 | 77 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M6PFDA | 540745.9 | 3.763467 | 703,999.00 | 3.763483 | 77 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M3PFBS | 87717.04 | 1.845233 | 128,529.00 | 1.83695 | 68 | 50 - 150 | 0.0083 | +/-0.50 | | |
| M7PFUnA | 482748.6 | 3.906067 | 697,439.00 | 3.906067 | 69 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M2-6:2FTS | 62647.34 | 3.41245 | 79,376.00 | 3.41245 | 79 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M5PFPeA | 337570.9 | 1.6652 | 407,535.00 | 1.6652 | 83 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M5PFHxA | 644070.8 | 2.498417 | 794,423.00 | 2.490217 | 81 | 50 - 150 | 0.0082 | +/-0.50 | | |
| M3PFHxS | 82788.1 | 3.17765 | 129,092.00 | 3.169583 | 64 | 50 - 150 | 0.0081 | +/-0.50 | | |
| M4PFHpA | 728450.1 | 3.138483 | 955,392.00 | 3.1304 | 76 | 50 - 150 | 0.0081 | +/-0.50 | | |
| M8PFOA | 759114.8 | 3.421167 | 963,117.00 | 3.421183 | 79 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M8PFOS | 78802.05 | 3.620217 | 119,440.00 | 3.620217 | 66 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M9PFNA | 553310.6 | 3.613267 | 728,798.00 | 3.613267 | 76 | 50 - 150 | 0.0000 | +/-0.50 | | |
| MPFDoA | 360882.7 | 4.040683 | 640,609.00 | 4.040683 | 56 | 50 - 150 | 0.0000 | +/-0.50 | | |
| d5-NEtFOSAA | 135660 | 3.913533 | 187,724.00 | 3.913533 | 72 | 50 - 150 | 0.0000 | +/-0.50 | | |
| d3-NMeFOSAA | 177453.8 | 3.841733 | 221,800.00 | 3.84175 | 80 | 50 - 150 | 0.0000 | +/-0.50 | | |

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**INTERNAL STANDARD AREA AND RT SUMMARY**

**SOP-454 PFAS**

| Internal Standard | Response | RT | Reference Response | Reference RT | Area % | Area % Limits | RT Diff | RT Diff Limit | Q |
|---|---|---|---|---|---|---|---|---|---|
| **360175-Blankwater (22J0310-14 )** | | | Lab File ID: 22J0310-14.d | | | Analyzed: 10/22/22 03:48 | | | |
| M8FOSA | 198569.1 | 3.996567 | 328,138.00 | 3.996567 | 61 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-4:2FTS | 149407.6 | 2.4146 | 189,245.00 | 2.4064 | 79 | 50 - 150 | 0.0082 | +/-0.50 | |
| M2PFTA | 710918.8 | 4.27305 | 1,030,059.00 | 4.27305 | 69 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-8:2FTS | 167376.7 | 3.76295 | 107,857.00 | 3.76295 | 155 | 50 - 150 | 0.0000 | +/-0.50 | * |
| MPFBA | 349162.8 | 1.050167 | 470,407.00 | 1.04185 | 74 | 50 - 150 | 0.0083 | +/-0.50 | |
| M3HFPO-DA | 101303.2 | 2.749283 | 121,363.00 | 2.749283 | 83 | 50 - 150 | 0.0000 | +/-0.50 | |
| M6PFDA | 500567.9 | 3.763467 | 703,999.00 | 3.763483 | 71 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3PFBS | 98640.02 | 1.83695 | 128,529.00 | 1.83695 | 77 | 50 - 150 | 0.0000 | +/-0.50 | |
| M7PFUnA | 481835.2 | 3.906067 | 697,439.00 | 3.906067 | 69 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-6:2FTS | 60991.02 | 3.41245 | 79,376.00 | 3.41245 | 77 | 50 - 150 | 0.0000 | +/-0.50 | |
| M5PFPeA | 323596.8 | 1.6652 | 407,535.00 | 1.6652 | 79 | 50 - 150 | 0.0000 | +/-0.50 | |
| M5PFHxA | 637539.9 | 2.498417 | 794,423.00 | 2.490217 | 80 | 50 - 150 | 0.0082 | +/-0.50 | |
| M3PFHxS | 90364.94 | 3.17765 | 129,092.00 | 3.169583 | 70 | 50 - 150 | 0.0081 | +/-0.50 | |
| M4PFHpA | 733248.8 | 3.138483 | 955,392.00 | 3.1304 | 77 | 50 - 150 | 0.0081 | +/-0.50 | |
| M8PFOA | 723316.6 | 3.421167 | 963,117.00 | 3.421183 | 75 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOS | 79068.41 | 3.620217 | 119,440.00 | 3.620217 | 66 | 50 - 150 | 0.0000 | +/-0.50 | |
| M9PFNA | 551203.9 | 3.613267 | 728,798.00 | 3.613267 | 76 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFDoA | 429900.5 | 4.040683 | 640,609.00 | 4.040683 | 67 | 50 - 150 | 0.0000 | +/-0.50 | |
| d5-NEtFOSAA | 135179.9 | 3.913533 | 187,724.00 | 3.913533 | 72 | 50 - 150 | 0.0000 | +/-0.50 | |
| d3-NMeFOSAA | 162726.8 | 3.841733 | 221,800.00 | 3.84175 | 73 | 50 - 150 | 0.0000 | +/-0.50 | |

field blank, no quals

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**INTERNAL STANDARD AREA AND RT SUMMARY**

**SOP-466 PFAS**

| Internal Standard | Response | RT | Reference Response | Reference RT | Area % | Area % Limits | RT Diff | RT Diff Limit | Q |
|---|---|---|---|---|---|---|---|---|---|
| **360175-SB004-2.0 (22J0310-12 )** | | | Lab File ID: 22J0310-12.d | | | Analyzed: 10/18/22 21:38 | | | |
| M8FOSA | 280777.4 | 3.996567 | 243,595.00 | 3.996567 | 115 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-4:2FTS | 125448.8 | 2.439333 | 169,206.00 | 2.431017 | 74 | 50 - 150 | 0.0083 | +/-0.50 | |
| M2PFTA PFTA, PFTrDA | 517274.1 | 4.2892 | 1,065,332.00 | 4.2892 | 49 | 50 - 150 | 0.0000 | +/-0.50 | * UJ, ISL |
| M2-8:2FTS | 56423.19 | 3.770917 | 59,789.00 | 3.778883 | 94 | 50 - 150 | -0.0080 | +/-0.50 | |
| MPFBA | 383334.6 | 1.058467 | 335,941.00 | 1.050167 | 114 | 50 - 150 | 0.0083 | +/-0.50 | |
| M3HFPO-DA | 89792.74 | 2.773833 | 88,154.00 | 2.76565 | 102 | 50 - 150 | 0.0082 | +/-0.50 | |
| M6PFDA | 534895.1 | 3.779417 | 540,638.00 | 3.779417 | 99 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3PFBS | 112856 | 1.853533 | 111,885.00 | 1.853533 | 101 | 50 - 150 | 0.0000 | +/-0.50 | |
| M7PFUnA | 532374.5 | 3.914067 | 630,046.00 | 3.914067 | 84 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-6:2FTS | 50839.59 | 3.4205 | 66,261.00 | 3.4205 | 77 | 50 - 150 | 0.0000 | +/-0.50 | |
| M5PFPeA | 342045 | 1.681733 | 330,551.00 | 1.681733 | 103 | 50 - 150 | 0.0000 | +/-0.50 | |
| M5PFHxA | 687287.2 | 2.51485 | 713,594.00 | 2.51485 | 96 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3PFHxS | 102742.4 | 3.185733 | 102,735.00 | 3.185733 | 100 | 50 - 150 | 0.0000 | +/-0.50 | |
| M4PFHpA | 789873.4 | 3.14655 | 840,195.00 | 3.14655 | 94 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOA | 771843.9 | 3.437833 | 737,773.00 | 3.42985 | 105 | 50 - 150 | 0.0080 | +/-0.50 | |
| M8PFOS | 88551.22 | 3.6282 | 87,500.00 | 3.6282 | 101 | 50 - 150 | 0.0000 | +/-0.50 | |
| M9PFNA | 546603.8 | 3.629233 | 555,489.00 | 3.629233 | 98 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFDoA | 478714.5 | 4.048683 | 653,167.00 | 4.048683 | 73 | 50 - 150 | 0.0000 | +/-0.50 | |
| d5-NEtFOSAA | 112954.6 | 3.921533 | 167,187.00 | 3.921533 | 68 | 50 - 150 | 0.0000 | +/-0.50 | |
| d3-NMeFOSAA | 160235.7 | 3.8497 | 198,293.00 | 3.8497 | 81 | 50 - 150 | 0.0000 | +/-0.50 | |

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**INTERNAL STANDARD AREA AND RT SUMMARY**

**SOP-466 PFAS**

| Internal Standard | Response | RT | Reference Response | Reference RT | Area % | Area % Limits | RT Diff | RT Diff Limit | Q |
|---|---|---|---|---|---|---|---|---|---|
| **360175-SB003-2.0 (22J0310-09 )** | | | Lab File ID: 22J0310-09.d | | | Analyzed: 10/18/22 21:16 | | | |
| M8FOSA | 288751.5 | 3.996567 | 243,595.00 | 3.996567 | 119 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-4:2FTS | 126498.5 | 2.439333 | 169,206.00 | 2.431017 | 75 | 50 - 150 | 0.0083 | +/-0.50 | |
| M2PFTA PFTA, PFTrDA | 518761.6 | 4.2892 | 1,065,332.00 | 4.2892 | 49 | 50 - 150 | 0.0000 | +/-0.50 | * UJ, ISL |
| M2-8:2FTS | 60370.73 | 3.778883 | 59,789.00 | 3.778883 | 101 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFBA | 393241.9 | 1.058467 | 335,941.00 | 1.050167 | 117 | 50 - 150 | 0.0083 | +/-0.50 | |
| M3HFPO-DA | 86157.53 | 2.773833 | 88,154.00 | 2.76565 | 98 | 50 - 150 | 0.0082 | +/-0.50 | |
| M6PFDA | 549064 | 3.779417 | 540,638.00 | 3.779417 | 102 | 50 - 150 | 0.0000 | +/-0.50 | |
| M3PFBS | 116042.7 | 1.853533 | 111,885.00 | 1.853533 | 104 | 50 - 150 | 0.0000 | +/-0.50 | |
| M7PFUnA | 538786.3 | 3.914067 | 630,046.00 | 3.914067 | 86 | 50 - 150 | 0.0000 | +/-0.50 | |
| M2-6:2FTS | 47134.8 | 3.4205 | 66,261.00 | 3.4205 | 71 | 50 - 150 | 0.0000 | +/-0.50 | |
| M5PFPeA | 349718.3 | 1.681733 | 330,551.00 | 1.681733 | 106 | 50 - 150 | 0.0000 | +/-0.50 | |
| M5PFHxA | 693877.8 | 2.523067 | 713,594.00 | 2.51485 | 97 | 50 - 150 | 0.0082 | +/-0.50 | |
| M3PFHxS | 102068 | 3.185733 | 102,735.00 | 3.185733 | 99 | 50 - 150 | 0.0000 | +/-0.50 | |
| M4PFHpA | 817013.2 | 3.14655 | 840,195.00 | 3.14655 | 97 | 50 - 150 | 0.0000 | +/-0.50 | |
| M8PFOA | 753773.2 | 3.437833 | 737,773.00 | 3.42985 | 102 | 50 - 150 | 0.0080 | +/-0.50 | |
| M8PFOS | 93080.74 | 3.6282 | 87,500.00 | 3.6282 | 106 | 50 - 150 | 0.0000 | +/-0.50 | |
| M9PFNA | 557771.8 | 3.629233 | 555,489.00 | 3.629233 | 100 | 50 - 150 | 0.0000 | +/-0.50 | |
| MPFDoA | 482167.3 | 4.048683 | 653,167.00 | 4.048683 | 74 | 50 - 150 | 0.0000 | +/-0.50 | |
| d5-NEtFOSAA | 116874.3 | 3.921533 | 167,187.00 | 3.921533 | 70 | 50 - 150 | 0.0000 | +/-0.50 | |
| d3-NMeFOSAA | 141313.9 | 3.8497 | 198,293.00 | 3.8497 | 71 | 50 - 150 | 0.0000 | +/-0.50 | |

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**INTERNAL STANDARD AREA AND RT SUMMARY**

**SOP-466 PFAS**

| Internal Standard | Response | RT | Reference Response | Reference RT | Area % | Area % Limits | RT Diff | RT Diff Limit | Q | |
|---|---|---|---|---|---|---|---|---|---|---|
| **360175-SB001-2.0 (22J0310-03 )** | | | Lab File ID: 22J0310-03.d | | | Analyzed: 10/18/22 20:40 | | | | |
| M8FOSA | 281874.7 | 3.996567 | 243,595.00 | 3.996567 | 116 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M2-4:2FTS | 117874.5 | 2.439333 | 169,206.00 | 2.431017 | 70 | 50 - 150 | 0.0083 | +/-0.50 | | |
| M2PFTA PFTA, PFTrDA | 367163.2 | 4.2892 | 1,065,332.00 | 4.2892 | 34 | 50 - 150 | 0.0000 | +/-0.50 | * | UJ, ISL |
| M2-8:2FTS | 54401.44 | 3.770917 | 59,789.00 | 3.778883 | 91 | 50 - 150 | -0.0080 | +/-0.50 | | |
| MPFBA | 380354.9 | 1.058467 | 335,941.00 | 1.050167 | 113 | 50 - 150 | 0.0083 | +/-0.50 | | |
| M3HFPO-DA | 87219.47 | 2.773833 | 88,154.00 | 2.76565 | 99 | 50 - 150 | 0.0082 | +/-0.50 | | |
| M6PFDA | 493296.7 | 3.779417 | 540,638.00 | 3.779417 | 91 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M3PFBS | 112384.6 | 1.853533 | 111,885.00 | 1.853533 | 100 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M7PFUnA | 496566.4 | 3.914067 | 630,046.00 | 3.914067 | 79 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M2-6:2FTS | 46642.04 | 3.4205 | 66,261.00 | 3.4205 | 70 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M5PFPeA | 338502.1 | 1.681733 | 330,551.00 | 1.681733 | 102 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M5PFHxA | 671827.7 | 2.523067 | 713,594.00 | 2.51485 | 94 | 50 - 150 | 0.0082 | +/-0.50 | | |
| M3PFHxS | 98335.7 | 3.185733 | 102,735.00 | 3.185733 | 96 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M4PFHpA | 770797.1 | 3.14655 | 840,195.00 | 3.14655 | 92 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M8PFOA | 729983.1 | 3.437833 | 737,773.00 | 3.42985 | 99 | 50 - 150 | 0.0080 | +/-0.50 | | |
| M8PFOS | 86943.94 | 3.6282 | 87,500.00 | 3.6282 | 99 | 50 - 150 | 0.0000 | +/-0.50 | | |
| M9PFNA | 539543 | 3.629233 | 555,489.00 | 3.629233 | 97 | 50 - 150 | 0.0000 | +/-0.50 | | |
| MPFDoA | 442103.5 | 4.048683 | 653,167.00 | 4.048683 | 68 | 50 - 150 | 0.0000 | +/-0.50 | | |
| d5-NEtFOSAA | 99028.58 | 3.921533 | 167,187.00 | 3.921533 | 59 | 50 - 150 | 0.0000 | +/-0.50 | | |
| d3-NMeFOSAA | 135073 | 3.8497 | 198,293.00 | 3.8497 | 68 | 50 - 150 | 0.0000 | +/-0.50 | | |

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# 1 - FORM I
# ANALYSIS DATA SHEET

## 360175-SB004-2.0

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Pace New England | | | Work Order: | 22J0310 |
| Client: | NYDEC_Wood - Portland, ME | | | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Matrix: | Soil | Laboratory ID: | 22J0310-12 | File ID: | 22J0310-12.d |
| Sampled: | 09/27/22 10:00 | Prepared: | 10/17/22 00:00 | Analyzed: | 10/18/22 21:38 |
| Solids: | 82.06 | Preparation: | SOP 465-PFAAS | Dilution: | 1 |
| Initial/Final: | 5.5158 g / 5 mL | | | | |
| Batch: | B318791 | Sequence: | S078173 | Calibration: | 2200772 |
| | | | | Instrument: | QQQ4 |

| CAS NO. | COMPOUND | CONC. (µg/kg dry) | MDL | RL | Q |
|---|---|---|---|---|---|
| 375-22-4 | Perfluorobutanoic acid (PFBA) | 0.099 | 0.073 | 0.55 | J |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | | 0.084 | 0.55 | |
| 2706-90-3 | Perfluoropentanoic acid (PFPeA) | 0.21 | 0.084 | 0.55 | J |
| 307-24-4 | Perfluorohexanoic acid (PFHxA) | | 0.10 | 0.55 | |
| 763051-92-9 | 11Cl-PF3OUdS (F53B Major) | | 0.15 | 0.55 | |
| 756426-58-1 | 9Cl-PF3ONS (F53B Minor) | | 0.14 | 0.55 | |
| 919005-14-4 | 4,8-dioxa-3H-perfluorononanoic acid (ADON/ | | 0.17 | 0.55 | |
| 13252-13-6 | Hexafluoropropylene oxide dimer acid (HFPC | | 0.26 | 0.55 | |
| 39108-34-4 | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | | 0.14 | 0.55 | |
| 335-76-2 | Perfluorodecanoic acid (PFDA) | 0.41 | 0.070 | 0.55 | J |
| 307-55-1 | Perfluorododecanoic acid (PFDoA) | | 0.084 | 0.55 | |
| 113507-82-7 | Perfluoro(2-ethoxyethane)sulfonic acid (PFEI | | 0.090 | 0.55 | |
| 375-92-8 | Perfluoroheptanesulfonic acid (PFHpS) | | 0.16 | 0.55 | |
| 2991-50-6 | N-EtFOSAA | | 0.15 | 0.55 | |
| 2355-31-9 | N-MeFOSAA | | 0.10 | 0.55 | |
| 376-06-7 | Perfluorotetradecanoic acid (PFTA) | | 0.10 | 0.55 | |
| 72629-94-8 | Perfluorotridecanoic acid (PFTrDA) | | 0.12 | 0.55 | |
| 757124-72-4 | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | | 0.10 | 0.55 | |
| 335-77-3 | Perfluorodecanesulfonic acid (PFDS) | | 0.13 | 0.55 | |
| 754-91-6 | Perfluorooctanesulfonamide (FOSA) | 0.19 | 0.11 | 0.55 | J |
| 68259-12-1 | Perfluorononanesulfonic acid (PFNS) | | 0.15 | 0.55 | |
| 41997-13-1 | Perfluoro-1-hexanesulfonamide (FHxSA) | | 0.17 | 0.55 | |
| 30334-69-1 | Perfluoro-1-butanesulfonamide (FBSA) | | 0.17 | 0.55 | |
| 355-46-4 | Perfluorohexanesulfonic acid (PFHxS) | | 0.087 | 0.55 | |
| 377-73-1 | Perfluoro-4-oxapentanoic acid (PFMPA) | | 0.10 | 0.55 | |
| 863090-89-5 | Perfluoro-5-oxahexanoic acid (PFMBA) | | 0.10 | 0.55 | |
| 27619-97-2 | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | | 0.13 | 0.55 | |
| 2706-91-4 | Perfluoropetanesulfonic acid (PFPeS) | | 0.080 | 0.55 | |
| 2058-94-8 | Perfluoroundecanoic acid (PFUnA) | 0.48 | 0.10 | 0.55 | J |
| 151772-58-6 | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA | | 0.085 | 0.55 | |

# 1 - FORM I
# ANALYSIS DATA SHEET

## 360175-SB004-2.0

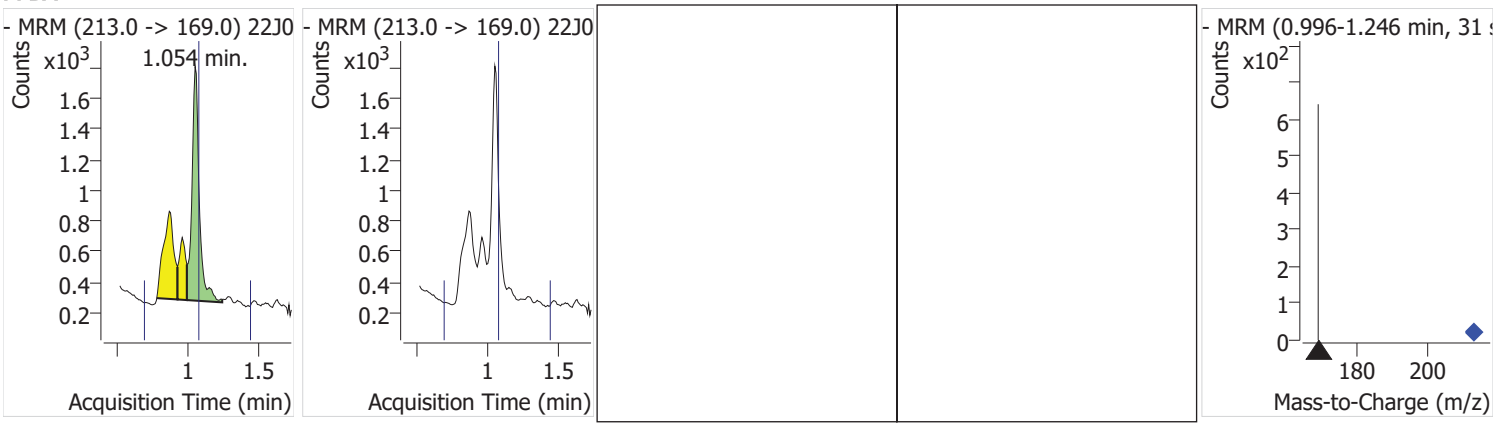
| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Pace New England | | | Work Order: | 22J0310 |
| Client: | NYDEC_Wood - Portland, ME | | | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Matrix: | Soil | Laboratory ID: | 22J0310-12 | File ID: | 22J0310-12.d |
| Sampled: | 09/27/22 10:00 | Prepared: | 10/17/22 00:00 | Analyzed: | 10/18/22 21:38 |
| Solids: | 82.06 | Preparation: | SOP 465-PFAAS | Dilution: | 1 |
| Initial/Final: | 5.5158 g / 5 mL | | | | |
| Batch: | B318791 | Sequence: | S078173 | Calibration: | 2200772 |
| | | | | Instrument: | QQQ4 |

| CAS NO. | COMPOUND | CONC. (µg/kg dry) | MDL | RL | Q |
|---|---|---|---|---|---|
| 375-85-9 | Perfluoroheptanoic acid (PFHpA) | 0.099 | 0.079 | 0.55 | J |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 0.37 | 0.16 | 0.55 | J |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 14 | 0.074 | 0.55 | |
| 375-95-1 | Perfluorononanoic acid (PFNA) | 0.14 | 0.090 | 0.55 | J |

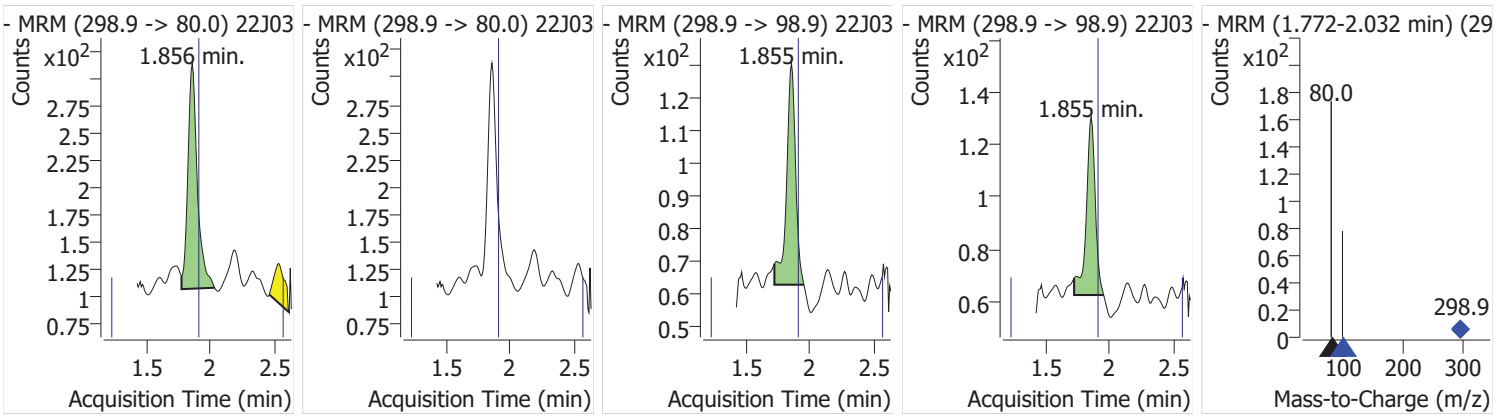
KRP 11/30/22

| Compound | RT | Resp. | ISTD | RT | ISTD Resp. | Final Conc | Units | MI | Reason | Analyst & Date |
|---|---|---|---|---|---|---|---|---|---|---|
| PFMPA | | | MPFBA - ISTD | 1.058 | 414872 | ND | pg/ml | | | |
| PFMBA | | | M5PFPeA - ISTD | 1.682 | 364368 | ND | pg/ml | | | |
| 6-2 FTS | 3.421 | 0 | M2-6-2-FTS - ISTD | 3.421 | 53097 | ND | pg/ml | ✔ | 1 | DRL 10/20/22 |
| PFPeS | 3.269 | 0 | M3PFHxS - ISTD | 3.186 | 113663 | ND | pg/ml | ✔ | 1 | DRL 10/20/22 |
| PFUnA | 3.915 | 33540 | M7PFUnA - ISTD | 3.914 | 582186 | 330.6419 | pg/ml | | | |
| NFDHA | 2.504 | 0 | M5PFHxA - ISTD | 2.523 | 737634 | ND | pg/ml | ✔ | 1 | DRL 10/20/22 |
| PFHpA | 3.147 | 20936 | M4PFHpA - ISTD | 3.147 | 865062 | 156.1891 | pg/ml | ✔ | 3 | DRL 10/20/22 |
| PFOA | 3.438 | 53369 | M8PFOA - ISTD | 3.438 | 835358 | 334.6965 | pg/ml | | | |
| PFOS | 3.629 | 281525 | M8PFOS - ISTD | 3.628 | 96441 | 14355.0478 | pg/ml | | | |
| PFNA | 3.629 | 25936 | M9PFNA - ISTD | 3.629 | 629715 | 213.6752 | pg/ml | ✔ | 3 | DRL 10/20/22 |

**PFBA**




**PFBS**




**PFPeA**




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# 1 - FORM I
# ANALYSIS DATA SHEET

## 360175-SB003-1.0

| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Pace New England | | | Work Order: | 22J0310 |
| Client: | NYDEC_Wood - Portland, ME | | | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Matrix: | Soil | Laboratory ID: | 22J0310-08 | File ID: | 22J0310-08.d |
| Sampled: | 09/27/22 11:10 | Prepared: | 10/17/22 00:00 | Analyzed: | 10/18/22 21:09 |
| Solids: | 87.95 | Preparation: | SOP 465-PFAAS | Dilution: | 1 |
| Initial/Final: | 5.573 g / 5 mL | | | | |
| Batch: | B318791 | Sequence: | S078173 | Calibration: | 2200772 |
| | | | | Instrument: | QQQ4 |

| CAS NO. | COMPOUND | CONC. (µg/kg dry) | MDL | RL | Q |
|---|---|---|---|---|---|
| 375-22-4 | Perfluorobutanoic acid (PFBA) | 0.081 | 0.067 | 0.50 | J |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | | 0.077 | 0.50 | |
| 2706-90-3 | Perfluoropentanoic acid (PFPeA) | 0.31 | 0.077 | 0.50 | J |
| 307-24-4 | Perfluorohexanoic acid (PFHxA) | 0.15 | 0.094 | 0.50 | J |
| 763051-92-9 | 11Cl-PF3OUdS (F53B Major) | | 0.14 | 0.50 | |
| 756426-58-1 | 9Cl-PF3ONS (F53B Minor) | | 0.13 | 0.50 | |
| 919005-14-4 | 4,8-dioxa-3H-perfluorononanoic acid (ADON/ | | 0.16 | 0.50 | |
| 13252-13-6 | Hexafluoropropylene oxide dimer acid (HFPC | | 0.24 | 0.50 | |
| 39108-34-4 | 8:2 Fluorotelomersulfonic acid (8:2FTS A) | | 0.13 | 0.50 | |
| 335-76-2 | Perfluorodecanoic acid (PFDA) | 0.70 | 0.065 | 0.50 | |
| 307-55-1 | Perfluorododecanoic acid (PFDoA) | 0.93 | 0.077 | 0.50 | |
| 113507-82-7 | Perfluoro(2-ethoxyethane)sulfonic acid (PFEI | | 0.083 | 0.50 | |
| 375-92-8 | Perfluoroheptanesulfonic acid (PFHpS) | | 0.15 | 0.50 | |
| 2991-50-6 | N-EtFOSAA | 0.50 | 0.14 | 0.50 | J |
| 2355-31-9 | N-MeFOSAA | 0.24 | 0.092 | 0.50 | J |
| 376-06-7 | Perfluorotetradecanoic acid (PFTA) | 0.32 | 0.097 | 0.50 | J |
| 72629-94-8 | Perfluorotridecanoic acid (PFTrDA) | 0.16 | 0.11 | 0.50 | J |
| 757124-72-4 | 4:2 Fluorotelomersulfonic acid (4:2FTS A) | | 0.093 | 0.50 | |
| 335-77-3 | Perfluorodecanesulfonic acid (PFDS) | 0.12 | 0.12 | 0.50 | J |
| 754-91-6 | Perfluorooctanesulfonamide (FOSA) | 2.6 | 0.099 | 0.50 | |
| 68259-12-1 | Perfluorononanesulfonic acid (PFNS) | | 0.14 | 0.50 | |
| 41997-13-1 | Perfluoro-1-hexanesulfonamide (FHxSA) | | 0.15 | 0.50 | |
| 30334-69-1 | Perfluoro-1-butanesulfonamide (FBSA) | | 0.16 | 0.50 | |
| 355-46-4 | Perfluorohexanesulfonic acid (PFHxS) | | 0.081 | 0.50 | |
| 377-73-1 | Perfluoro-4-oxapentanoic acid (PFMPA) | | 0.095 | 0.50 | |
| 863090-89-5 | Perfluoro-5-oxahexanoic acid (PFMBA) | | 0.093 | 0.50 | |
| 27619-97-2 | 6:2 Fluorotelomersulfonic acid (6:2FTS A) | | 0.12 | 0.50 | |
| 2706-91-4 | Perfluoropetanesulfonic acid (PFPeS) | | 0.074 | 0.50 | |
| 2058-94-8 | Perfluoroundecanoic acid (PFUnA) | 0.34 | 0.092 | 0.50 | J |
| 151772-58-6 | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA | | 0.079 | 0.50 | |

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# 1 - FORM I
# ANALYSIS DATA SHEET

## 360175-SB003-1.0

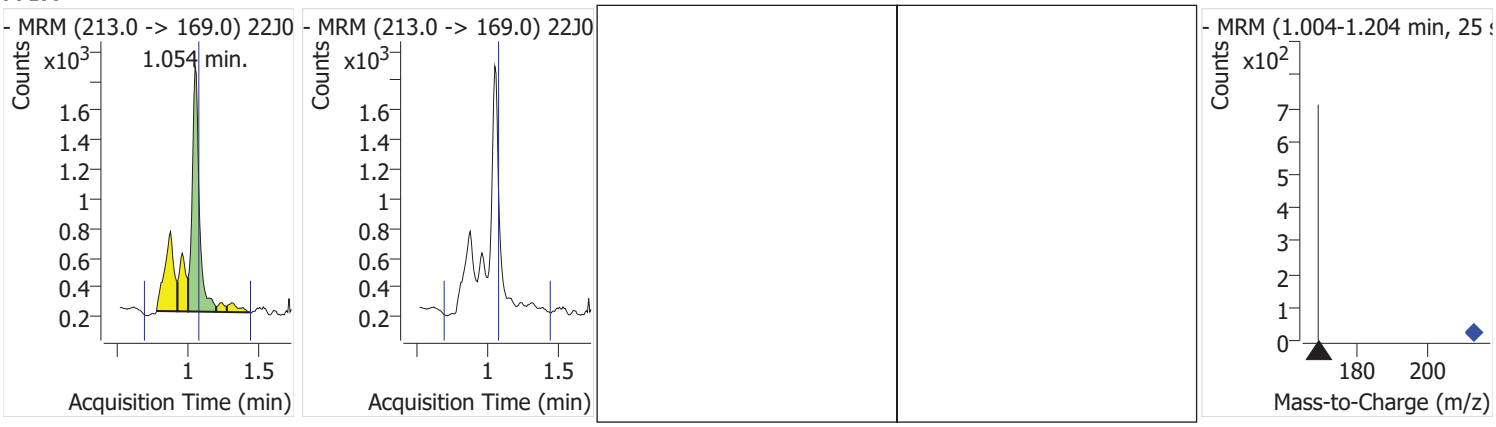
| | | | | | |
|---|---|---|---|---|---|
| Laboratory: | Pace New England | | | Work Order: | 22J0310 |
| Client: | NYDEC_Wood - Portland, ME | | | Project: | Irvington Rugs and Cleaners - CO 142890 |
| Matrix: | Soil | Laboratory ID: | 22J0310-08 | File ID: | 22J0310-08.d |
| Sampled: | 09/27/22 11:10 | Prepared: | 10/17/22 00:00 | Analyzed: | 10/18/22 21:09 |
| Solids: | 87.95 | Preparation: | SOP 465-PFAAS | Dilution: | 1 |
| Initial/Final: | 5.573 g / 5 mL | | | | |
| Batch: | B318791 | Sequence: | S078173 | Calibration: | 2200772 |
| | | | | Instrument: | QQQ4 |

| CAS NO. | COMPOUND | CONC. (µg/kg dry) | MDL | RL | Q |
|---|---|---|---|---|---|
| 375-85-9 | Perfluoroheptanoic acid (PFHpA) | 0.16 | 0.073 | 0.50 | J |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 0.34 | 0.14 | 0.50 | J |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 15 | 0.068 | 0.50 | |
| 375-95-1 | Perfluorononanoic acid (PFNA) | 0.22 | 0.083 | 0.50 | J |

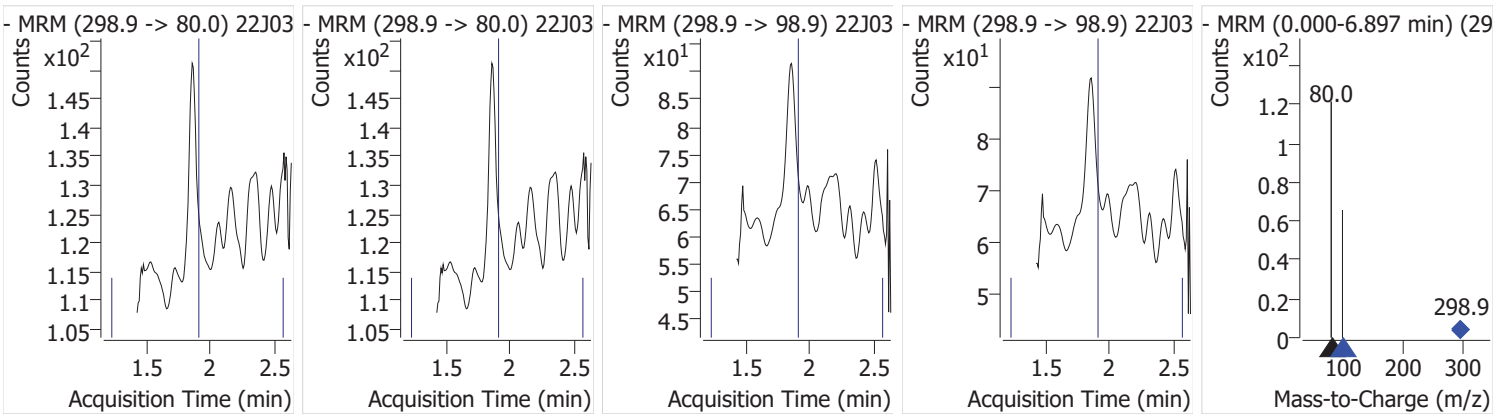
KRP 11/30/22

| Compound | RT | Resp. | ISTD | RT | ISTD Resp. | Final Conc | Units | MI | Reason | Analyst & Date |
|---|---|---|---|---|---|---|---|---|---|---|
| PFMBA | | | M5PFPeA - ISTD | 1.682 | 342045 | ND | pg/ml | | | |
| 6-2 FTS | 3.413 | 0 | M2-6-2-FTS - ISTD | 3.421 | 50840 | ND | pg/ml | ✔ | 1 | DRL 10/20/22 |
| PFPeS | | | M3PFHxS - ISTD | 3.186 | 102742 | ND | pg/ml | | | |
| PFUnA | 3.882 | 40518 | M7PFUnA - ISTD | 3.914 | 532375 | 436.7505 | pg/ml | | | |
| NFDHA | | | M5PFHxA - ISTD | 2.515 | 687287 | ND | pg/ml | | | |
| PFHpA | 3.147 | 11006 | M4PFHpA - ISTD | 3.147 | 789873 | 89.9311 | pg/ml | | | |
| PFOA | 3.438 | 49902 | M8PFOA - ISTD | 3.438 | 771844 | 338.7073 | pg/ml | | | |
| PFOS | 3.629 | 233614 | M8PFOS - ISTD | 3.628 | 88551 | 12967.9189 | pg/ml | | | |
| PFNA | 3.629 | 13693 | M9PFNA - ISTD | 3.629 | 546604 | 129.9831 | pg/ml | | | |

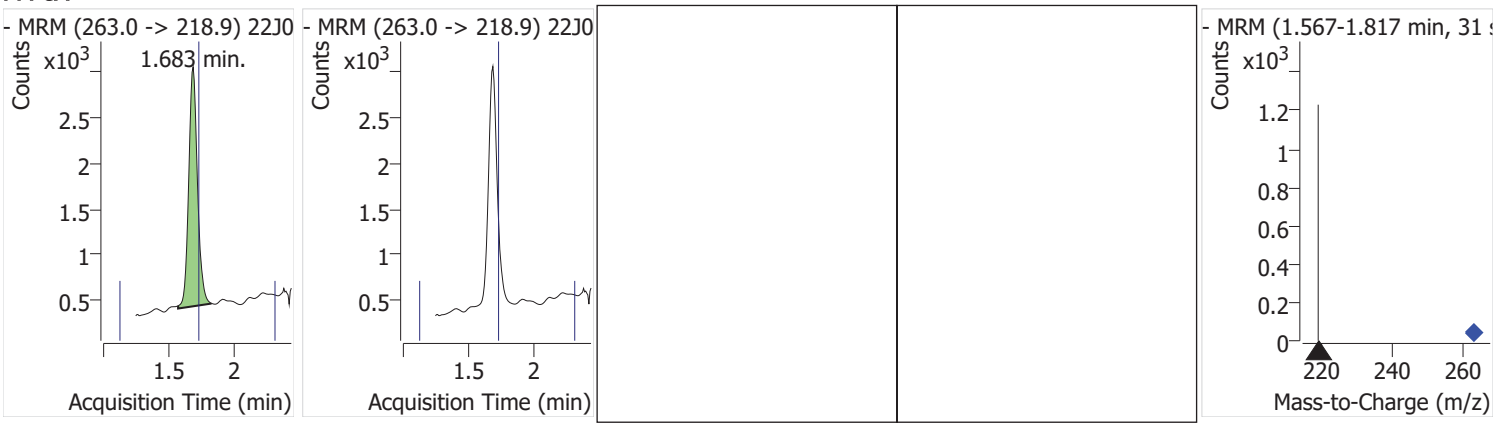
**PFBA**




**PFBS**




**PFPeA**




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# Calculation Checks for NYSDEC DUSR
# Site:Irvington

## SDG = 22J0310

## Sample Calculation Check

Field Sample ID = SB-04
Lab Sample ID = 22J0310-12
Date = 10/18/2022
Time = 21:38

| Compound Area (PFOS) | Internal Std Conc (ug/L) | Internal Std Area | RF |
|---|---|---|---|
| 233614 | 5 | 88551 | 0.958299 |
| | | Concentration (ug/L) = | 13.76 |
| | | Sample Wt (g) = | 5.52 |
| | | Dilution Factor = | 1.00 |
| | | Water Extraction (mL) = | 5.00 |
| | | % Solid = | 0.82 |
| | | Final Concentration (dry) = | 15 |

## Sample Calculation Check

Field Sample ID = SB-03
Lab Sample ID = 22J0310-08
Date = 10/18/2022
Time = 21:09

| Compound Area (PFOS) | Internal Std Conc (ug/L) | Internal Std Area | RF |
|---|---|---|---|
| 281525 | 5 | 96441 | 0.958299 |
| | | Concentration (ug/L) = | 15.23 |
| | | Sample Wt (g) = | 5.57 |
| | | Dilution Factor = | 1.00 |
| | | Water Extraction (mL) = | 5.00 |
| | | % Solid = | 0.88 |
| | | Final Concentration (dry) = | 16 |

# DATA USABILITY SUMMARY REPORT
# OCTOBER 2023 SOIL SAMPLING
# IRVINGTON RUGS AND CLEANERS
# IRVINGTON, NEW YORK

## 1.0 INTRODUCTION

Soil samples were collected in October 2023 at the Irvington Rugs and Cleaners Site in Irvington, New York, and shipped to Eurofins New England (ENE) located in North Kingstown, Rhode Island. ENE subcontracted the samples to Eurofins Lancaster (ELLE) located in Lancaster, Pennsylvania, for analysis. Samples were analyzed by the following methods:

- Per- and Polyfluorinated Alkyl Substances (PFAS) by Method 1633
- Total Solids by Method SM2540G

Results were reported in the following sample delivery group (SDG):

- 620-14747-1

A Data Usability Summary Report (DUSR) review was completed based on the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation guidance (NYSDEC, 2010). Sample event information included in this DUSR is presented in the following tables:

- Table 1 – Summary of Samples and Analytical Methods
- Table 2 – Summary of Analytical Results
- Table 3 – Summary of Qualification Actions

A summary of table notes applicable to Tables 1, 2, and 3 is presented just before Table 1.

Laboratory deliverables included:

- Category B deliverables as defined in the NYSDEC Analytical Services Protocols (NYSDEC, 2005).

The DUSR review included the following evaluations as applicable. A table of the project control limits is presented in Attachment A. DUSR review checklists and applicable laboratory QC summary forms are included in Attachment B to document QC outliers associated with qualification actions.

- Lab Report Narrative Review
- Data Package Completeness and COC records (Table 1 verification)
- Sample Preservation and Holding Times
- Instrument Calibration (report narrative/lab-qualifier evaluation)
- QC Blanks
- Laboratory Control Samples (LCS)
- Matrix Spike/Matrix Spike Duplicates (MS/MSD)

- Surrogate Spikes (if applicable)
- Field Duplicates
- Target Analyte Identification and Quantitation
- Compound Identification – ion ratios/Signal to Noise
- Branched Isomers
- Bile Salt Standard
- Raw Data (chromatograms), Calculation Checks and Transcription Verifications
- Reporting Limits
- Electronic Data Qualification and Verification

Data qualification actions were based on general procedures identified in the NYSDEC validation guideline for PFAS (NYSDEC, 2023). The following laboratory or data review qualifiers are used in the final data presentation:

U = target analyte is not detected above the reported detection limit
J = concentration is estimated
UJ = target analyte is not detected, value is estimated
J+ = concentration is estimated and potentially biased high

Results are interpreted to be usable as reported by the laboratory unless discussed in the following sections.

## 2.0 POTENTIAL DATA LIMITATIONS

Based on the DUSR review the majority of data meet the data quality objectives; however, the following potential limitations were identified.

Detections for multiple parameters in subsets of samples were qualified as estimated with potential high bias (J+) based on percent recoveries in the associated laboratory control samples that were greater than the upper control limits. Qualified results are included in Table 3 with reason code LCSH.

Results for perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), and perfluorohexanoic acid (PFHxA) in sample 360175-SB-7-0 were qualified as estimated with potential high bias (J+) based on percent recoveries in the associated MS/MSD that were greater than the upper control limit. The MS/MSD relative percent difference (RPD) for PFHxA exceeded control limits. Qualified results are included in Table 3 with reason codes MSH and/or MSRPD.

Results for PFOA, PFNA, perfluoropentanoic acid (PFPeA), and N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) in sample 360175-SB-5-0 and associated field duplicate 360175-SB-5-0 D were qualified as estimated with potential high bias (J+) based on percent recoveries in the associated MS/MSD that were greater than the upper control limit. Qualified results are included in Table 3 with reason code MSH.

Results for PFOA in sample 360175-SB-3A-0 and associated field duplicate 360175-SB-3A-0 D were qualified as estimated (J) based on a field duplicate RPD that exceeded project limits. Qualified results are included in Table 3 with reason code FD.

The reporting limit for N-ethyl perfluorooctane sulfonamide (NEtFOSA) in sample 360175-SB-1A-5 was qualified estimated (UJ) based on percent recovery of the associated extracted internal standard less than the 50-150 project limits. The qualified result is included in Table 3 with reason code EIS.

Results for several parameters in multiple samples were qualified as estimated (J) due to ion ratios that exceeded control limits. Qualified results are included in Table 3 with reason code IR.

## 3.0 ADDITIONAL QC EXCEEDANCES AND OBSERVATIONS

There were no additional observations or quality control exceedances not specifically addressed above (Section 2.0) or included in Table 3.

**Reference:**

NYSDEC, 2005. "Analytical Services Protocols"; July 2005.

NYSDEC, 2010. "Technical Guidance for Site Investigation and Remediation-Appendix 2B"; DER-10; Division of Environmental Remediation; May 2010.

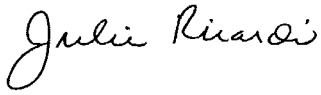
NYSDEC, 2023. “Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids”; April 2023.

Data Validator: Amber Jones



February 7, 2024

Reviewed by: Julie Ricardi



February 7, 2024

**Standard Table Notes:**

Sample Type (QC Code)

FS – field sample

FD – field duplicate

TB – trip blank

EB – equipment blank

FB – field blank

Matrix

GW – ground water

BW – blank water

TW – tap water

SV – soil vapor

SED - sediment

Units

mg/L – milligrams per liter

ng/L – nanograms per liter

µg/L – micrograms per liter

mg/kg – milligrams per kilogram

µg/kg – micrograms per kilogram

µg/$m^3$ – micrograms per cubic meter

Qualifiers

U – not detected above quantitation limit

J – estimated quantity

J+ - estimated quantity, biased high

J- - estimated quantity, biased low

R – data unusable

Fraction

T – total

D – dissolved

N – normal

Qualification Reason Codes

BL1 – method blank qualifier

BL2 – field or trip blank qualifier

CCV – continuing calibration verification recovery outside limits

CCV%D – continuing calibration verification percent difference exceeds goal

CCVRRF – continuing calibration relative response factor low

CI – chromatographic interference present

DCPD – dual column percent difference exceeds limit

E – result exceeds calibration range

FD – field duplicate precision goal exceeded

FP – false positive interference

HT – holding time for prep or analysis exceeded

HTG – holding time for prep or analysis grossly exceeded

ICV – initial calibration verification recovery outside limit

ICVRRF – initial calibration verification relative response factor low

ICVRSD – initial calibration verification % relative standard deviation exceeds goal

ISH – internal standard response greater than limit

ISL – internal standard response less than limit

LCSH – laboratory control sample recovery high

LCSL – laboratory control sample recovery low

LCSRPD – laboratory control sample/duplicate relative % difference precision goal exceeded

LD – lab duplicate precision goal exceeded

MSH – matrix spike and/or MS duplicate recovery high

MSL – matrix spike and/or MS duplicate recovery low

MSRPD – matrix spike/duplicate relative % difference precision goal exceeded

N – analyte identification is not certain

PEM – performance evaluation mixture exceeds limit

PM – sample percent moisture exceeds EPA guideline

SD – serial dilution result exceeds percent difference limit

SP – sample preservation/collection does not meet method requirement

SSH – surrogate recovery high

SSL – surrogate recovery low

TD – dissolved concentration exceeds total

TABLE 1 - SUMMARY OF SAMPLES AND ANALYTICAL METHODS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | **Method Class** | PFAS | Moisture |
|---|---|---|---|---|---|---|---|---|
| | | | | | | **Analysis Method** | E1633 | D2216 |
| | | | | | | **Fraction** | N | N |
| **Lab SDG** | **Media** | **Location** | **Field Sample ID** | **Sample Date** | **Lab Sample ID** | **Qc Code** | Count | Count |
| 620-14747-1 | BW | QC | 360175-Source Blank | 10/18/2023 | 620-14747-33 | FB | 40 | |
| 620-14747-1 | SOIL | SB-10 | 360175-SB-10-1 | 10/18/2023 | 620-14747-32 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-1A | 360175-SB-1A-0 | 10/18/2023 | 620-14747-14 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-1A | 360175-SB-1A-2 | 10/18/2023 | 620-14747-15 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-1A | 360175-SB-1A-5 | 10/18/2023 | 620-14747-16 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-2A | 360175-SB-2A-0 | 10/18/2023 | 620-14747-7 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-2A | 360175-SB-2A-2 | 10/18/2023 | 620-14747-8 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-2A | 360175-SB-2A-5 | 10/18/2023 | 620-14747-9 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-3A | 360175-SB-3A-0 | 10/18/2023 | 620-14747-10 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-3A | 360175-SB-3A-0 D | 10/18/2023 | 620-14747-11 | FD | 40 | 1 |
| 620-14747-1 | SOIL | SB-3A | 360175-SB-3A-2 | 10/18/2023 | 620-14747-12 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-3A | 360175-SB-3A-5 | 10/18/2023 | 620-14747-13 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-4 | 360175-SB-4-0 | 10/18/2023 | 620-14747-27 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-4 | 360175-SB-4-2 | 10/18/2023 | 620-14747-28 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-4 | 360175-SB-4-5 | 10/18/2023 | 620-14747-29 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-5 | 360175-SB-5-0 | 10/18/2023 | 620-14747-3 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-5 | 360175-SB-5-0 D | 10/18/2023 | 620-14747-4 | FD | 40 | 1 |
| 620-14747-1 | SOIL | SB-5 | 360175-SB-5-2 | 10/18/2023 | 620-14747-5 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-5 | 360175-SB-5-5 | 10/18/2023 | 620-14747-6 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-6 | 360175-SB-6-0 | 10/18/2023 | 620-14747-22 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-6 | 360175-SB-6-0.2 | 10/18/2023 | 620-14747-23 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-6 | 360175-SB-6-1 | 10/18/2023 | 620-14747-24 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-6 | 360175-SB-6-2 | 10/18/2023 | 620-14747-25 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-6 | 360175-SB-6-5 | 10/18/2023 | 620-14747-26 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-7 | 360175-SB-7-0 | 10/18/2023 | 620-14747-1 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-7 | 360175-SB-7-1 | 10/18/2023 | 620-14747-2 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-8 | 360175-SB-8-0 | 10/18/2023 | 620-14747-17 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-8 | 360175-SB-8-0.2 | 10/18/2023 | 620-14747-18 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-8 | 360175-SB-8-1 | 10/18/2023 | 620-14747-19 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-8 | 360175-SB-8-2 | 10/18/2023 | 620-14747-20 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-8 | 360175-SB-8-5 | 10/18/2023 | 620-14747-21 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-9 | 360175-SB-9-0 | 10/18/2023 | 620-14747-30 | FS | 40 | 1 |
| 620-14747-1 | SOIL | SB-9 | 360175-SB-9-2 | 10/18/2023 | 620-14747-31 | FS | 40 | 1 |


Created by: KLD 12/13/2023
Checked by: ALJ 2/6/2024

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Location** | SB-10 | | SB-1A | | SB-1A | | SB-1A | |
| | | **Lab Sample Delivery Group** | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | **Field Sample Date** | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | **Field Sample ID** | 360175-SB-10-1 | | 360175-SB-1A-0 | | 360175-SB-1A-2 | | 360175-SB-1A-5 | |
| | | **Qc Code** | FS | | FS | | FS | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NG/G | 0.791 | U | 0.788 | U | 0.791 | U | 0.794 | U |
| E1633 | 2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA) | NG/G | 4.94 | U | 4.92 | U | 4.95 | U | 4.96 | U |
| E1633 | 3-Perfluoroheptyl propanoic acid (7:3FTCA) | NG/G | 4.94 | U | 4.92 | U | 4.95 | U | 4.96 | U |
| E1633 | 3-Perfluoropropyl propanoic acid (3:3FTCA) | NG/G | 0.988 | U | 0.984 | U | 0.989 | U | 0.992 | U |
| E1633 | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NG/G | 0.791 | U | 0.788 | U | 0.791 | U | 0.794 | U |
| E1633 | 4:2 Fluorotelomer sulfonic acid (4:2FTS) | NG/G | 0.791 | U | 0.788 | U | 0.791 | U | 0.794 | U |
| E1633 | 6:2 Fluorotelomer sulfonic acid (6:2FTS) | NG/G | 0.988 | U | 0.984 | U | 0.989 | U | 0.992 | U |
| E1633 | 8:2 Fluorotelomer sulfonic acid (8:2FTS) | NG/G | 0.988 | U | 0.984 | U | 0.989 | U | 0.992 | U |
| E1633 | 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) | NG/G | 0.791 | U | 0.788 | U | 0.791 | U | 0.794 | U |
| E1633 | Hexafluoropropylene oxide dimer acid (HFPO-DA) | NG/G | 0.791 | U | 0.788 | U | 0.791 | U | 0.794 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamide (NEtFOSA) | NG/G | 0.198 | U | 0.197 | U | 0.198 | U | 0.198 | UJ |
| E1633 | N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE) | NG/G | 1.98 | U | 1.97 | U | 1.98 | U | 1.98 | U |
| E1633 | N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NG/G | 0.198 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | NG/G | 0.198 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamidoethanol (NMEFOSE) | NG/G | 1.98 | U | 1.97 | U | 1.98 | U | 1.98 | U |
| E1633 | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NG/G | 0.198 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| E1633 | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NG/G | 0.395 | U | 0.394 | U | 0.396 | U | 0.397 | U |
| E1633 | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | NG/G | 0.395 | U | 0.394 | U | 0.396 | U | 0.397 | U |
| E1633 | Perfluoro-3-methoxypropanoic acid (PFMPA) | NG/G | 0.395 | U | 0.394 | U | 0.396 | U | 0.397 | U |
| E1633 | Perfluoro-4-methoxybutanoic acid (PFMBA) | NG/G | 0.395 | U | 0.394 | U | 0.396 | U | 0.397 | U |
| E1633 | Perfluorobutanesulfonic acid (PFBS) | NG/G | 0.198 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| E1633 | Perfluorobutanoic acid (PFBA) | NG/G | 0.172 | J | 0.788 | U | 0.791 | U | 0.794 | U |
| E1633 | Perfluorodecanesulfonic acid (PFDS) | NG/G | 0.198 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| E1633 | Perfluorodecanoic acid (PFDA) | NG/G | 0.422 | | 0.466 | | 0.198 | U | 0.198 | U |
| E1633 | Perfluorododecanesulfonic acid (PFDoS) | NG/G | 0.198 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| E1633 | Perfluorododecanoic acid (PFDoA) | NG/G | 0.198 | U | 0.0864 | J+ | 0.198 | U | 0.198 | U |
| E1633 | Perfluoroheptanesulfonic acid (PFHpS) | NG/G | 0.198 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| E1633 | Perfluoroheptanoic acid (PFHpA) | NG/G | 0.183 | J+ | 0.113 | J | 0.0673 | J | 0.0507 | J |
| E1633 | Perfluorohexanesulfonic acid (PFHxS) | NG/G | 0.198 | U | 0.197 | U | 0.198 | U | 0.198 | U |


Created by: KLD 2/6/2024
Checked by: ALJ 2/6/2024

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Location** | SB-10 | | SB-1A | | SB-1A | | SB-1A | |
| | | **Lab Sample Delivery Group** | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | **Field Sample Date** | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | **Field Sample ID** | 360175-SB-10-1 | | 360175-SB-1A-0 | | 360175-SB-1A-2 | | 360175-SB-1A-5 | |
| | | **Qc Code** | FS | | FS | | FS | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | Perfluorohexanoic acid (PFHxA) | NG/G | 0.395 | J | 0.152 | J+ | 0.117 | J+ | 0.198 | U |
| E1633 | Perfluorononanesulfonate | NG/G | 0.198 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| E1633 | Perfluorononanoic acid (PFNA) | NG/G | 0.653 | J+ | 0.149 | J+ | 0.514 | J+ | 0.364 | J+ |
| E1633 | Perfluorooctanesulfonamide (PFOSA) | NG/G | 0.198 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| E1633 | Perfluorooctanesulfonic acid (PFOS) | NG/G | 3.5 | | 3.68 | | 7.19 | | 0.601 | |
| E1633 | Perfluorooctanoic acid (PFOA) | NG/G | 0.473 | J+ | 0.195 | J+ | 0.178 | J+ | 0.221 | J+ |
| E1633 | Perfluoropentanesulfonic acid (PFPeS) | NG/G | 0.198 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| E1633 | Perfluoropentanoic acid (PFPeA) | NG/G | 0.34 | J+ | 0.394 | U | 0.13 | J+ | 0.397 | U |
| E1633 | Perfluorotetradecanoic acid (PFTeDA) | NG/G | 0.198 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| E1633 | Perfluorotridecanoic acid (PFTrDA) | NG/G | 0.198 | U | 0.197 | U | 0.198 | U | 0.198 | U |
| E1633 | Perfluoroundecanoic acid (PFUnA) | NG/G | 0.198 | U | 0.1 | J+ | 0.198 | U | 0.198 | U |
| D2216 | Percent Moisture | PERCEN | 15.9 | | 12 | | 16.6 | | 21.6 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Location** | SB-2A | | SB-2A | | SB-2A | | SB-3A | |
| | | **Lab Sample Delivery Group** | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | **Field Sample Date** | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | **Field Sample ID** | 360175-SB-2A-0 | | 360175-SB-2A-2 | | 360175-SB-2A-5 | | 360175-SB-3A-0 | |
| | | **Qc Code** | FS | | FS | | FS | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | 11-Chlororeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NG/G | 0.797 | U | 0.795 | U | 0.79 | U | 0.8 | U |
| E1633 | 2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA) | NG/G | 4.98 | U | 4.97 | U | 4.93 | U | 5 | U |
| E1633 | 3-Perfluoroheptyl propanoic acid (7:3FTCA) | NG/G | 4.98 | U | 4.97 | U | 4.93 | U | 5 | U |
| E1633 | 3-Perfluoropropyl propanoic acid (3:3FTCA) | NG/G | 0.996 | U | 0.993 | U | 0.987 | U | 0.999 | U |
| E1633 | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NG/G | 0.797 | U | 0.795 | U | 0.79 | U | 0.8 | U |
| E1633 | 4:2 Fluorotelomer sulfonic acid (4:2FTS) | NG/G | 0.797 | U | 0.795 | U | 0.79 | U | 0.8 | U |
| E1633 | 6:2 Fluorotelomer sulfonic acid (6:2FTS) | NG/G | 0.996 | U | 0.993 | U | 0.987 | U | 0.999 | U |
| E1633 | 8:2 Fluorotelomer sulfonic acid (8:2FTS) | NG/G | 0.996 | U | 0.993 | U | 0.987 | U | 0.999 | U |
| E1633 | 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) | NG/G | 0.797 | U | 0.795 | U | 0.79 | U | 0.8 | U |
| E1633 | Hexafluoropropylene oxide dimer acid (HFPO-DA) | NG/G | 0.797 | U | 0.795 | U | 0.79 | U | 0.8 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamide (NEtFOSA) | NG/G | 0.199 | U | 0.199 | U | 0.197 | U | 0.2 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE) | NG/G | 1.99 | U | 1.99 | U | 1.97 | U | 2 | U |
| E1633 | N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NG/G | 0.432 | J+ | 0.199 | U | 0.197 | U | 0.2 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | NG/G | 0.199 | U | 0.199 | U | 0.197 | U | 0.2 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamidoethanol (NMEFOSE) | NG/G | 1.99 | U | 1.99 | U | 1.97 | U | 2 | U |
| E1633 | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NG/G | 0.2 | J+ | 0.199 | U | 0.197 | U | 0.111 | J+ |
| E1633 | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NG/G | 0.398 | U | 0.397 | U | 0.395 | U | 0.4 | U |
| E1633 | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | NG/G | 0.398 | U | 0.397 | U | 0.395 | U | 0.4 | U |
| E1633 | Perfluoro-3-methoxypropanoic acid (PFMPA) | NG/G | 0.398 | U | 0.397 | U | 0.395 | U | 0.4 | U |
| E1633 | Perfluoro-4-methoxybutanoic acid (PFMBA) | NG/G | 0.398 | U | 0.397 | U | 0.395 | U | 0.4 | U |
| E1633 | Perfluorobutanesulfonic acid (PFBS) | NG/G | 0.0517 | J+ | 0.132 | J+ | 0.061 | J+ | 0.2 | U |
| E1633 | Perfluorobutanoic acid (PFBA) | NG/G | 0.797 | U | 0.795 | U | 0.79 | U | 0.8 | U |
| E1633 | Perfluorodecanesulfonic acid (PFDS) | NG/G | 0.199 | U | 0.199 | U | 0.197 | U | 0.2 | U |
| E1633 | Perfluorodecanoic acid (PFDA) | NG/G | 1.66 | | 0.199 | U | 0.197 | U | 0.904 | |
| E1633 | Perfluorododecanesulfonic acid (PFDoS) | NG/G | 0.199 | U | 0.199 | U | 0.197 | U | 0.2 | U |
| E1633 | Perfluorododecanoic acid (PFDoA) | NG/G | 0.768 | J+ | 0.199 | U | 0.197 | U | 2.26 | J+ |
| E1633 | Perfluoroheptanesulfonic acid (PFHpS) | NG/G | 0.199 | U | 0.223 | J+ | 0.197 | U | 0.2 | U |
| E1633 | Perfluoroheptanoic acid (PFHpA) | NG/G | 0.199 | U | 0.129 | J | 0.197 | U | 0.053 | J |
| E1633 | Perfluorohexanesulfonic acid (PFHxS) | NG/G | 0.0563 | J | 0.128 | J | 0.197 | U | 0.2 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Location** | SB-2A | | SB-2A | | SB-2A | | SB-3A | |
| | | **Lab Sample Delivery Group** | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | **Field Sample Date** | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | **Field Sample ID** | 360175-SB-2A-0 | | 360175-SB-2A-2 | | 360175-SB-2A-5 | | 360175-SB-3A-0 | |
| | | **Qc Code** | FS | | FS | | FS | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | Perfluorohexanoic acid (PFHxA) | NG/G | 0.199 | U | 0.117 | J+ | 0.197 | U | 0.2 | U |
| E1633 | Perfluorononanesulfonate | NG/G | 0.199 | U | 0.199 | U | 0.197 | U | 0.2 | U |
| E1633 | Perfluorononanoic acid (PFNA) | NG/G | 0.122 | J+ | 2.85 | J+ | 0.289 | J+ | 0.557 | J+ |
| E1633 | Perfluorooctanesulfonamide (PFOSA) | NG/G | 0.593 | | 0.199 | U | 0.197 | U | 0.238 | |
| E1633 | Perfluorooctanesulfonic acid (PFOS) | NG/G | 4.41 | | 4.08 | J | 0.279 | | 0.869 | |
| E1633 | Perfluorooctanoic acid (PFOA) | NG/G | 0.163 | J+ | 1.18 | J+ | 0.12 | J+ | 0.157 | J+ |
| E1633 | Perfluoropentanesulfonic acid (PFPeS) | NG/G | 0.199 | U | 0.199 | U | 0.197 | U | 0.2 | U |
| E1633 | Perfluoropentanoic acid (PFPeA) | NG/G | 0.398 | U | 0.134 | J+ | 0.395 | U | 0.4 | U |
| E1633 | Perfluorotetradecanoic acid (PFTeDA) | NG/G | 0.226 | | 0.199 | U | 0.197 | U | 0.665 | |
| E1633 | Perfluorotridecanoic acid (PFTrDA) | NG/G | 0.0978 | J | 0.199 | U | 0.197 | U | 0.238 | |
| E1633 | Perfluoroundecanoic acid (PFUnA) | NG/G | 0.358 | J+ | 0.199 | U | 0.197 | U | 0.837 | J+ |
| D2216 | Percent Moisture | PERCEN | 9.1 | | 18.8 | | 21.8 | | 5.8 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **Location** | SB-3A | | SB-3A | | SB-3A | | SB-4 | |
| | | **Lab Sample Delivery Group** | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | **Field Sample Date** | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | **Field Sample ID** | 360175-SB-3A-0 D | | 360175-SB-3A-2 | | 360175-SB-3A-5 | | 360175-SB-4-0 | |
| | | **Qc Code** | FD | | FS | | FS | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | 11-Chlororeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NG/G | 0.791 | U | 0.795 | U | 0.79 | U | 0.793 | U |
| E1633 | 2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA) | NG/G | 4.95 | U | 4.97 | U | 4.94 | U | 4.95 | U |
| E1633 | 3-Perfluoroheptyl propanoic acid (7:3FTCA) | NG/G | 4.95 | U | 4.97 | U | 4.94 | U | 4.95 | U |
| E1633 | 3-Perfluoropropyl propanoic acid (3:3FTCA) | NG/G | 0.989 | U | 0.994 | U | 0.988 | U | 0.991 | U |
| E1633 | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NG/G | 0.791 | U | 0.795 | U | 0.79 | U | 0.793 | U |
| E1633 | 4:2 Fluorotelomer sulfonic acid (4:2FTS) | NG/G | 0.791 | U | 0.795 | U | 0.79 | U | 0.793 | U |
| E1633 | 6:2 Fluorotelomer sulfonic acid (6:2FTS) | NG/G | 0.989 | U | 0.994 | U | 0.988 | U | 9.91 | U |
| E1633 | 8:2 Fluorotelomer sulfonic acid (8:2FTS) | NG/G | 0.989 | U | 0.994 | U | 0.988 | U | 0.991 | U |
| E1633 | 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) | NG/G | 0.791 | U | 0.795 | U | 0.79 | U | 0.793 | U |
| E1633 | Hexafluoropropylene oxide dimer acid (HFPO-DA) | NG/G | 0.791 | U | 0.795 | U | 0.79 | U | 0.793 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamide (NEtFOSA) | NG/G | 0.198 | U | 0.199 | U | 0.198 | U | 0.198 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE) | NG/G | 1.98 | U | 1.99 | U | 1.98 | U | 1.98 | U |
| E1633 | N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NG/G | 0.198 | U | 0.199 | U | 0.166 | J+ | 0.11 | J |
| E1633 | N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | NG/G | 0.198 | U | 0.199 | U | 0.0637 | J | 0.198 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamidoethanol (NMEFOSE) | NG/G | 1.98 | U | 1.99 | U | 1.98 | U | 1.98 | U |
| E1633 | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NG/G | 0.0899 | J+ | 0.199 | U | 0.137 | J+ | 0.198 | U |
| E1633 | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NG/G | 0.396 | U | 0.398 | U | 0.395 | U | 0.396 | U |
| E1633 | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | NG/G | 0.396 | U | 0.398 | U | 0.395 | U | 0.396 | U |
| E1633 | Perfluoro-3-methoxypropanoic acid (PFMPA) | NG/G | 0.396 | U | 0.398 | U | 0.395 | U | 0.396 | U |
| E1633 | Perfluoro-4-methoxybutanoic acid (PFMBA) | NG/G | 0.396 | U | 0.398 | U | 0.395 | U | 0.396 | U |
| E1633 | Perfluorobutanesulfonic acid (PFBS) | NG/G | 0.198 | U | 0.199 | U | 0.198 | U | 0.121 | J+ |
| E1633 | Perfluorobutanoic acid (PFBA) | NG/G | 0.791 | U | 0.795 | U | 0.79 | U | 0.109 | J |
| E1633 | Perfluorodecanesulfonic acid (PFDS) | NG/G | 0.198 | U | 0.199 | U | 0.198 | U | 0.198 | U |
| E1633 | Perfluorodecanoic acid (PFDA) | NG/G | 0.866 | | 0.667 | | 0.198 | U | 0.262 | |
| E1633 | Perfluorododecanesulfonic acid (PFDoS) | NG/G | 0.198 | U | 0.199 | U | 0.198 | U | 0.198 | U |
| E1633 | Perfluorododecanoic acid (PFDoA) | NG/G | 2.08 | J+ | 0.199 | U | 0.198 | U | 0.147 | J |
| E1633 | Perfluoroheptanesulfonic acid (PFHpS) | NG/G | 0.198 | U | 0.199 | U | 0.198 | U | 0.198 | U |
| E1633 | Perfluoroheptanoic acid (PFHpA) | NG/G | 0.0658 | J | 0.226 | | 0.198 | U | 0.198 | U |
| E1633 | Perfluorohexanesulfonic acid (PFHxS) | NG/G | 0.198 | U | 0.0589 | J | 0.198 | U | 0.198 | U |


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Checked by: ALJ 2/6/2024

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | Location | SB-3A | | SB-3A | | SB-3A | | SB-4 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Lab Sample Delivery Group | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | Field Sample Date | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | Field Sample ID | 360175-SB-3A-0 D | | 360175-SB-3A-2 | | 360175-SB-3A-5 | | 360175-SB-4-0 | |
| | | Qc Code | FD | | FS | | FS | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | Perfluorohexanoic acid (PFHxA) | NG/G | 0.198 | U | 0.0843 | J+ | 0.198 | U | 0.198 | U |
| E1633 | Perfluorononanesulfonate | NG/G | 0.198 | U | 0.199 | U | 0.198 | U | 0.198 | U |
| E1633 | Perfluorononanoic acid (PFNA) | NG/G | 0.467 | J+ | 0.108 | J+ | 0.198 | U | 0.198 | U |
| E1633 | Perfluorooctanesulfonamide (PFOSA) | NG/G | 0.221 | | 0.199 | U | 0.141 | J | 0.118 | J |
| E1633 | Perfluorooctanesulfonic acid (PFOS) | NG/G | 0.854 | | 0.762 | | 0.451 | | 4.36 | |
| E1633 | Perfluorooctanoic acid (PFOA) | NG/G | 0.221 | J+ | 0.558 | J+ | 0.198 | U | 0.122 | J+ |
| E1633 | Perfluoropentanesulfonic acid (PFPeS) | NG/G | 0.198 | U | 0.199 | U | 0.198 | U | 0.198 | U |
| E1633 | Perfluoropentanoic acid (PFPeA) | NG/G | 0.396 | U | 0.171 | J+ | 0.395 | U | 0.396 | U |
| E1633 | Perfluorotetradecanoic acid (PFTeDA) | NG/G | 0.616 | | 0.199 | U | 0.198 | U | 0.0674 | J |
| E1633 | Perfluorotridecanoic acid (PFTrDA) | NG/G | 0.194 | J | 0.199 | U | 0.198 | U | 0.198 | U |
| E1633 | Perfluoroundecanoic acid (PFUnA) | NG/G | 0.794 | J+ | 0.199 | U | 0.0509 | J+ | 0.102 | J |
| D2216 | Percent Moisture | PERCEN | 7.4 | | 7.7 | | 21.4 | | 13.4 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | Location | SB-4 | | SB-4 | | SB-5 | | SB-5 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Lab Sample Delivery Group | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | Field Sample Date | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | Field Sample ID | 360175-SB-4-2 | | 360175-SB-4-5 | | 360175-SB-5-0 | | 360175-SB-5-0 D | |
| | | Qc Code | FS | | FS | | FS | | FD | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NG/G | 0.793 | U | 0.795 | U | 0.79 | U | 0.898 | U |
| E1633 | 2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA) | NG/G | 4.96 | U | 4.97 | U | 4.94 | U | 5.61 | U |
| E1633 | 3-Perfluoroheptyl propanoic acid (7:3FTCA) | NG/G | 4.96 | U | 4.97 | U | 4.94 | U | 5.61 | U |
| E1633 | 3-Perfluoropropyl propanoic acid (3:3FTCA) | NG/G | 0.991 | U | 0.994 | U | 0.987 | U | 1.12 | U |
| E1633 | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NG/G | 0.793 | U | 0.795 | U | 0.79 | U | 0.898 | U |
| E1633 | 4:2 Fluorotelomer sulfonic acid (4:2FTS) | NG/G | 0.793 | U | 0.795 | U | 0.79 | U | 0.898 | U |
| E1633 | 6:2 Fluorotelomer sulfonic acid (6:2FTS) | NG/G | 0.991 | U | 0.994 | U | 0.987 | U | 1.12 | U |
| E1633 | 8:2 Fluorotelomer sulfonic acid (8:2FTS) | NG/G | 0.991 | U | 0.994 | U | 0.987 | U | 1.12 | U |
| E1633 | 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) | NG/G | 0.793 | U | 0.795 | U | 0.79 | U | 0.898 | U |
| E1633 | Hexafluoropropylene oxide dimer acid (HFPO-DA) | NG/G | 0.793 | U | 0.795 | U | 0.79 | U | 0.898 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamide (NEtFOSA) | NG/G | 0.198 | U | 0.199 | U | 0.197 | U | 0.224 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE) | NG/G | 1.98 | U | 1.99 | U | 1.97 | U | 2.24 | U |
| E1633 | N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NG/G | 0.141 | J | 0.199 | U | 0.197 | U | 0.224 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | NG/G | 0.198 | U | 0.199 | U | 0.197 | U | 0.224 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamidoethanol (NMEFOSE) | NG/G | 1.98 | U | 1.99 | U | 1.97 | U | 2.24 | U |
| E1633 | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NG/G | 0.135 | J+ | 0.199 | U | 0.123 | J+ | 0.139 | J+ |
| E1633 | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NG/G | 0.397 | U | 0.398 | U | 0.395 | U | 0.449 | U |
| E1633 | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | NG/G | 0.397 | U | 0.398 | U | 0.395 | U | 0.449 | U |
| E1633 | Perfluoro-3-methoxypropanoic acid (PFMPA) | NG/G | 0.397 | U | 0.398 | U | 0.395 | U | 0.449 | U |
| E1633 | Perfluoro-4-methoxybutanoic acid (PFMBA) | NG/G | 0.397 | U | 0.398 | U | 0.395 | U | 0.449 | U |
| E1633 | Perfluorobutanesulfonic acid (PFBS) | NG/G | 0.198 | U | 0.199 | U | 0.197 | U | 0.0755 | J |
| E1633 | Perfluorobutanoic acid (PFBA) | NG/G | 0.793 | U | 0.795 | U | 0.79 | U | 0.898 | U |
| E1633 | Perfluorodecanesulfonic acid (PFDS) | NG/G | 0.198 | U | 0.199 | U | 0.197 | U | 0.224 | U |
| E1633 | Perfluorodecanoic acid (PFDA) | NG/G | 0.327 | | 0.199 | U | 1.38 | | 1.66 | |
| E1633 | Perfluorododecanesulfonic acid (PFDoS) | NG/G | 0.198 | U | 0.199 | U | 0.197 | U | 0.224 | U |
| E1633 | Perfluorododecanoic acid (PFDoA) | NG/G | 0.0865 | J | 0.199 | U | 0.577 | J+ | 0.45 | |
| E1633 | Perfluoroheptanesulfonic acid (PFHpS) | NG/G | 0.198 | U | 0.199 | U | 0.197 | U | 0.224 | U |
| E1633 | Perfluoroheptanoic acid (PFHpA) | NG/G | 0.198 | U | 0.199 | U | 0.112 | J | 0.104 | J |
| E1633 | Perfluorohexanesulfonic acid (PFHxS) | NG/G | 0.198 | U | 0.199 | U | 0.0967 | J | 0.108 | J |


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Checked by: ALJ 2/6/2024

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | Location | SB-4 | | SB-4 | | SB-5 | | SB-5 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Lab Sample Delivery Group | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | Field Sample Date | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | Field Sample ID | 360175-SB-4-2 | | 360175-SB-4-5 | | 360175-SB-5-0 | | 360175-SB-5-0 D | |
| | | Qc Code | FS | | FS | | FS | | FD | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | Perfluorohexanoic acid (PFHxA) | NG/G | 0.198 | U | 0.199 | U | 0.197 | U | 0.0861 | J |
| E1633 | Perfluorononanesulfonate | NG/G | 0.198 | U | 0.199 | U | 0.197 | U | 0.224 | U |
| E1633 | Perfluorononanoic acid (PFNA) | NG/G | 0.11 | J+ | 0.07 | J+ | 0.185 | J+ | 0.187 | J+ |
| E1633 | Perfluorooctanesulfonamide (PFOSA) | NG/G | 0.197 | J | 0.199 | U | 0.151 | J | 0.132 | J |
| E1633 | Perfluorooctanesulfonic acid (PFOS) | NG/G | 8.67 | | 0.537 | | 12.3 | | 13.4 | |
| E1633 | Perfluorooctanoic acid (PFOA) | NG/G | 0.109 | J+ | 0.199 | U | 0.202 | J+ | 0.243 | J+ |
| E1633 | Perfluoropentanesulfonic acid (PFPeS) | NG/G | 0.198 | U | 0.199 | U | 0.197 | U | 0.224 | U |
| E1633 | Perfluoropentanoic acid (PFPeA) | NG/G | 0.397 | U | 0.398 | U | 0.139 | J+ | 0.144 | J+ |
| E1633 | Perfluorotetradecanoic acid (PFTeDA) | NG/G | 0.198 | U | 0.199 | U | 0.171 | J | 0.137 | J |
| E1633 | Perfluorotridecanoic acid (PFTrDA) | NG/G | 0.198 | U | 0.199 | U | 0.0682 | J | 0.0687 | J |
| E1633 | Perfluoroundecanoic acid (PFUnA) | NG/G | 0.0656 | J | 0.199 | U | 0.254 | J+ | 0.261 | |
| D2216 | Percent Moisture | PERCEN | 26.1 | | 17.9 | | 10.7 | | 16.9 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | Location | SB-5 | | SB-5 | | SB-6 | | SB-6 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Lab Sample Delivery Group | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | Field Sample Date | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | Field Sample ID | 360175-SB-5-2 | | 360175-SB-5-5 | | 360175-SB-6-0 | | 360175-SB-6-0.2 | |
| | | Qc Code | FS | | FS | | FS | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | 11-Chlororeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NG/G | 0.8 | U | 0.789 | U | 0.797 | U | 0.798 | U |
| E1633 | 2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA) | NG/G | 5 | U | 4.93 | U | 4.98 | U | 4.99 | U |
| E1633 | 3-Perfluoroheptyl propanoic acid (7:3FTCA) | NG/G | 5 | U | 4.93 | U | 4.98 | U | 4.99 | U |
| E1633 | 3-Perfluoropropyl propanoic acid (3:3FTCA) | NG/G | 0.999 | U | 0.987 | U | 0.996 | U | 0.998 | U |
| E1633 | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NG/G | 0.8 | U | 0.789 | U | 0.797 | U | 0.798 | U |
| E1633 | 4:2 Fluorotelomer sulfonic acid (4:2FTS) | NG/G | 0.8 | U | 0.789 | U | 0.797 | U | 0.798 | U |
| E1633 | 6:2 Fluorotelomer sulfonic acid (6:2FTS) | NG/G | 0.999 | U | 0.987 | U | 0.996 | U | 9.98 | U |
| E1633 | 8:2 Fluorotelomer sulfonic acid (8:2FTS) | NG/G | 0.999 | U | 0.987 | U | 0.996 | U | 0.998 | U |
| E1633 | 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) | NG/G | 0.8 | U | 0.789 | U | 0.797 | U | 0.798 | U |
| E1633 | Hexafluoropropylene oxide dimer acid (HFPO-DA) | NG/G | 0.8 | U | 0.789 | U | 0.797 | U | 0.798 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamide (NEtFOSA) | NG/G | 0.2 | U | 0.197 | U | 0.199 | U | 0.2 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE) | NG/G | 2 | U | 1.97 | U | 0.517 | J | 0.765 | J |
| E1633 | N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NG/G | 0.2 | U | 0.197 | U | 0.161 | J | 0.179 | J |
| E1633 | N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | NG/G | 0.2 | U | 0.197 | U | 0.199 | U | 0.2 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamidoethanol (NMEFOSE) | NG/G | 2 | U | 1.97 | U | 1.99 | U | 2 | U |
| E1633 | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NG/G | 0.2 | U | 0.197 | U | 0.055 | J+ | 0.095 | J+ |
| E1633 | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NG/G | 0.4 | U | 0.395 | U | 0.398 | U | 0.399 | U |
| E1633 | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | NG/G | 0.4 | U | 0.395 | U | 0.398 | U | 0.399 | U |
| E1633 | Perfluoro-3-methoxypropanoic acid (PFMPA) | NG/G | 0.4 | U | 0.395 | U | 0.398 | U | 0.399 | U |
| E1633 | Perfluoro-4-methoxybutanoic acid (PFMBA) | NG/G | 0.4 | U | 0.395 | U | 0.398 | U | 0.399 | U |
| E1633 | Perfluorobutanesulfonic acid (PFBS) | NG/G | 0.2 | U | 0.0583 | J+ | 0.112 | J+ | 0.2 | U |
| E1633 | Perfluorobutanoic acid (PFBA) | NG/G | 0.8 | U | 0.789 | U | 0.123 | J | 0.798 | U |
| E1633 | Perfluorodecanesulfonic acid (PFDS) | NG/G | 0.2 | U | 0.197 | U | 0.179 | J | 0.0927 | J |
| E1633 | Perfluorodecanoic acid (PFDA) | NG/G | 0.2 | U | 0.197 | U | 0.623 | | 0.385 | |
| E1633 | Perfluorododecanesulfonic acid (PFDoS) | NG/G | 0.2 | U | 0.197 | U | 0.199 | U | 0.2 | U |
| E1633 | Perfluorododecanoic acid (PFDoA) | NG/G | 0.2 | U | 0.197 | U | 0.89 | | 0.476 | |
| E1633 | Perfluoroheptanesulfonic acid (PFHpS) | NG/G | 0.0973 | J+ | 0.197 | U | 0.199 | U | 0.2 | U |
| E1633 | Perfluoroheptanoic acid (PFHpA) | NG/G | 0.0925 | J | 0.197 | U | 0.112 | J+ | 0.0718 | J+ |
| E1633 | Perfluorohexanesulfonic acid (PFHxS) | NG/G | 0.122 | J | 0.197 | U | 0.081 | J | 0.0516 | J |


Created by: KLD 2/6/2024
Checked by: ALJ 2/6/2024

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | Location | SB-5 | | SB-5 | | SB-6 | | SB-6 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Lab Sample Delivery Group | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | Field Sample Date | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | Field Sample ID | 360175-SB-5-2 | | 360175-SB-5-5 | | 360175-SB-6-0 | | 360175-SB-6-0.2 | |
| | | Qc Code | FS | | FS | | FS | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | Perfluorohexanoic acid (PFHxA) | NG/G | 0.0697 | J+ | 0.197 | U | 0.32 | J | 0.208 | |
| E1633 | Perfluorononanesulfonate | NG/G | 0.2 | U | 0.197 | U | 0.199 | U | 0.2 | U |
| E1633 | Perfluorononanoic acid (PFNA) | NG/G | 1.29 | J+ | 0.138 | J+ | 0.209 | J+ | 0.141 | J+ |
| E1633 | Perfluorooctanesulfonamide (PFOSA) | NG/G | 0.2 | U | 0.197 | U | 0.277 | | 0.336 | |
| E1633 | Perfluorooctanesulfonic acid (PFOS) | NG/G | 18.4 | | 1.04 | | 6.06 | | 3.8 | |
| E1633 | Perfluorooctanoic acid (PFOA) | NG/G | 0.352 | J+ | 0.106 | J+ | 0.502 | J+ | 0.306 | J+ |
| E1633 | Perfluoropentanesulfonic acid (PFPeS) | NG/G | 0.2 | U | 0.197 | U | 0.199 | U | 0.2 | U |
| E1633 | Perfluoropentanoic acid (PFPeA) | NG/G | 0.187 | J+ | 0.395 | U | 0.343 | J+ | 0.23 | J+ |
| E1633 | Perfluorotetradecanoic acid (PFTeDA) | NG/G | 0.2 | U | 0.197 | U | 0.311 | | 0.172 | J |
| E1633 | Perfluorotridecanoic acid (PFTrDA) | NG/G | 0.2 | U | 0.197 | U | 0.338 | | 0.148 | J |
| E1633 | Perfluoroundecanoic acid (PFUnA) | NG/G | 0.2 | U | 0.197 | U | 0.865 | | 0.454 | |
| D2216 | Percent Moisture | PERCEN | 19 | | 19.4 | | 32.5 | | 19 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Location** | SB-6 | | SB-6 | | SB-6 | | SB-7 | |
| | | **Lab Sample Delivery Group** | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | **Field Sample Date** | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | **Field Sample ID** | 360175-SB-6-1 | | 360175-SB-6-2 | | 360175-SB-6-5 | | 360175-SB-7-0 | |
| | | **Qc Code** | FS | | FS | | FS | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NG/G | 0.791 | U | 0.793 | U | 0.797 | U | 0.8 | U |
| E1633 | 2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA) | NG/G | 4.94 | U | 4.96 | U | 4.98 | U | 5 | U |
| E1633 | 3-Perfluoroheptyl propanoic acid (7:3FTCA) | NG/G | 4.94 | U | 4.96 | U | 4.98 | U | 5 | U |
| E1633 | 3-Perfluoropropyl propanoic acid (3:3FTCA) | NG/G | 0.989 | U | 0.991 | U | 0.996 | U | 1 | U |
| E1633 | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NG/G | 0.791 | U | 0.793 | U | 0.797 | U | 0.8 | U |
| E1633 | 4:2 Fluorotelomer sulfonic acid (4:2FTS) | NG/G | 0.791 | U | 0.793 | U | 0.797 | U | 0.8 | U |
| E1633 | 6:2 Fluorotelomer sulfonic acid (6:2FTS) | NG/G | 0.989 | U | 0.991 | U | 0.996 | U | 1 | U |
| E1633 | 8:2 Fluorotelomer sulfonic acid (8:2FTS) | NG/G | 0.989 | U | 0.991 | U | 0.996 | U | 1 | U |
| E1633 | 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) | NG/G | 0.791 | U | 0.793 | U | 0.797 | U | 0.8 | U |
| E1633 | Hexafluoropropylene oxide dimer acid (HFPO-DA) | NG/G | 0.791 | U | 0.793 | U | 0.797 | U | 0.8 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamide (NEtFOSA) | NG/G | 0.198 | U | 0.198 | U | 0.199 | U | 0.2 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE) | NG/G | 1.98 | U | 1.98 | U | 1.99 | U | 2 | U |
| E1633 | N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NG/G | 0.0704 | J | 0.198 | U | 0.199 | U | 0.0585 | J |
| E1633 | N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | NG/G | 0.198 | U | 0.198 | U | 0.199 | U | 0.2 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamidoethanol (NMEFOSE) | NG/G | 1.98 | U | 1.98 | U | 1.99 | U | 2 | U |
| E1633 | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NG/G | 0.0731 | J+ | 0.198 | U | 0.199 | U | 0.2 | U |
| E1633 | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NG/G | 0.395 | U | 0.396 | U | 0.398 | U | 0.4 | U |
| E1633 | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | NG/G | 0.395 | U | 0.396 | U | 0.398 | U | 0.4 | U |
| E1633 | Perfluoro-3-methoxypropanoic acid (PFMPA) | NG/G | 0.395 | U | 0.396 | U | 0.398 | U | 0.4 | U |
| E1633 | Perfluoro-4-methoxybutanoic acid (PFMBA) | NG/G | 0.395 | U | 0.396 | U | 0.398 | U | 0.4 | U |
| E1633 | Perfluorobutanesulfonic acid (PFBS) | NG/G | 0.198 | U | 0.198 | U | 0.199 | U | 0.0796 | J |
| E1633 | Perfluorobutanoic acid (PFBA) | NG/G | 0.791 | U | 0.793 | U | 0.797 | U | 0.143 | J |
| E1633 | Perfluorodecanesulfonic acid (PFDS) | NG/G | 0.198 | U | 0.198 | U | 0.199 | U | 0.15 | J |
| E1633 | Perfluorodecanoic acid (PFDA) | NG/G | 0.264 | | 0.233 | | 0.0524 | J | 0.462 | |
| E1633 | Perfluorododecanesulfonic acid (PFDoS) | NG/G | 0.198 | U | 0.198 | U | 0.199 | U | 0.2 | U |
| E1633 | Perfluorododecanoic acid (PFDoA) | NG/G | 0.149 | J | 0.198 | U | 0.199 | U | 0.465 | |
| E1633 | Perfluoroheptanesulfonic acid (PFHpS) | NG/G | 0.198 | U | 0.198 | U | 0.199 | U | 0.2 | U |
| E1633 | Perfluoroheptanoic acid (PFHpA) | NG/G | 0.0691 | J+ | 0.0552 | J+ | 0.199 | U | 0.112 | J |
| E1633 | Perfluorohexanesulfonic acid (PFHxS) | NG/G | 0.0597 | J | 0.198 | U | 0.199 | U | 0.2 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Location** | SB-6 | | SB-6 | | SB-6 | | SB-7 | |
| | | **Lab Sample Delivery Group** | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | **Field Sample Date** | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | **Field Sample ID** | 360175-SB-6-1 | | 360175-SB-6-2 | | 360175-SB-6-5 | | 360175-SB-7-0 | |
| | | **Qc Code** | FS | | FS | | FS | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | Perfluorohexanoic acid (PFHxA) | NG/G | 0.264 | J | 0.118 | J | 0.199 | U | 0.0892 | J+ |
| E1633 | Perfluorononanesulfonate | NG/G | 0.198 | U | 0.198 | U | 0.199 | U | 0.2 | U |
| E1633 | Perfluorononanoic acid (PFNA) | NG/G | 0.0926 | J+ | 0.0626 | J+ | 0.195 | J+ | 0.191 | J+ |
| E1633 | Perfluorooctanesulfonamide (PFOSA) | NG/G | 0.126 | J | 0.198 | U | 0.199 | U | 0.2 | U |
| E1633 | Perfluorooctanesulfonic acid (PFOS) | NG/G | 4.71 | | 2.49 | | 0.848 | | 2.24 | |
| E1633 | Perfluorooctanoic acid (PFOA) | NG/G | 0.228 | J+ | 0.114 | J+ | 0.0784 | J+ | 0.366 | J+ |
| E1633 | Perfluoropentanesulfonic acid (PFPeS) | NG/G | 0.198 | U | 0.198 | U | 0.199 | U | 0.2 | U |
| E1633 | Perfluoropentanoic acid (PFPeA) | NG/G | 0.326 | J+ | 0.153 | J+ | 0.398 | U | 0.166 | J |
| E1633 | Perfluorotetradecanoic acid (PFTeDA) | NG/G | 0.0604 | J | 0.198 | U | 0.199 | U | 0.211 | |
| E1633 | Perfluorotridecanoic acid (PFTrDA) | NG/G | 0.198 | U | 0.198 | U | 0.199 | U | 0.211 | |
| E1633 | Perfluoroundecanoic acid (PFUnA) | NG/G | 0.199 | | 0.0913 | J | 0.199 | U | 0.555 | |
| D2216 | Percent Moisture | PERCEN | 18 | | 30.9 | | 15.6 | | 34.2 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | Location | SB-7 | | SB-8 | | SB-8 | | SB-8 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Lab Sample Delivery Group | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | Field Sample Date | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | Field Sample ID | 360175-SB-7-1 | | 360175-SB-8-0 | | 360175-SB-8-0.2 | | 360175-SB-8-1 | |
| | | Qc Code | FS | | FS | | FS | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | 11-Chlororeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NG/G | 0.8 | U | 0.795 | U | 0.797 | U | 0.797 | U |
| E1633 | 2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA) | NG/G | 5 | U | 4.97 | U | 4.98 | U | 4.98 | U |
| E1633 | 3-Perfluoroheptyl propanoic acid (7:3FTCA) | NG/G | 5 | U | 4.97 | U | 4.98 | U | 4.98 | U |
| E1633 | 3-Perfluoropropyl propanoic acid (3:3FTCA) | NG/G | 1 | U | 0.994 | U | 0.996 | U | 0.997 | U |
| E1633 | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NG/G | 0.8 | U | 0.795 | U | 0.797 | U | 0.797 | U |
| E1633 | 4:2 Fluorotelomer sulfonic acid (4:2FTS) | NG/G | 0.8 | U | 0.795 | U | 0.797 | U | 0.797 | U |
| E1633 | 6:2 Fluorotelomer sulfonic acid (6:2FTS) | NG/G | 1 | U | 0.994 | U | 0.996 | U | 0.997 | U |
| E1633 | 8:2 Fluorotelomer sulfonic acid (8:2FTS) | NG/G | 1 | U | 0.994 | U | 0.996 | U | 0.997 | U |
| E1633 | 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) | NG/G | 0.8 | U | 0.795 | U | 0.797 | U | 0.797 | U |
| E1633 | Hexafluoropropylene oxide dimer acid (HFPO-DA) | NG/G | 0.8 | U | 0.795 | U | 0.797 | U | 0.797 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamide (NEtFOSA) | NG/G | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE) | NG/G | 2 | U | 1.99 | U | 1.99 | U | 1.99 | U |
| E1633 | N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NG/G | 0.2 | U | 0.223 | | 0.199 | U | 0.199 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | NG/G | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamidoethanol (NMEFOSE) | NG/G | 2 | U | 1.99 | U | 1.99 | U | 1.99 | U |
| E1633 | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NG/G | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U |
| E1633 | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NG/G | 0.4 | U | 0.398 | U | 0.399 | U | 0.399 | U |
| E1633 | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | NG/G | 0.4 | U | 0.398 | U | 0.399 | U | 0.399 | U |
| E1633 | Perfluoro-3-methoxypropanoic acid (PFMPA) | NG/G | 0.4 | U | 0.398 | U | 0.399 | U | 0.399 | U |
| E1633 | Perfluoro-4-methoxybutanoic acid (PFMBA) | NG/G | 0.4 | U | 0.398 | U | 0.399 | U | 0.399 | U |
| E1633 | Perfluorobutanesulfonic acid (PFBS) | NG/G | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U |
| E1633 | Perfluorobutanoic acid (PFBA) | NG/G | 0.8 | U | 0.795 | U | 0.797 | U | 0.797 | U |
| E1633 | Perfluorodecanesulfonic acid (PFDS) | NG/G | 0.2 | U | 0.0715 | J | 0.199 | U | 0.199 | U |
| E1633 | Perfluorodecanoic acid (PFDA) | NG/G | 0.256 | | 0.092 | J | 0.185 | J | 0.199 | U |
| E1633 | Perfluorododecanesulfonic acid (PFDoS) | NG/G | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U |
| E1633 | Perfluorododecanoic acid (PFDoA) | NG/G | 0.0904 | J | 0.374 | | 0.343 | | 0.199 | U |
| E1633 | Perfluoroheptanesulfonic acid (PFHpS) | NG/G | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U |
| E1633 | Perfluoroheptanoic acid (PFHpA) | NG/G | 0.0801 | J | 0.199 | U | 0.199 | U | 0.199 | U |
| E1633 | Perfluorohexanesulfonic acid (PFHxS) | NG/G | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U |


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TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | Location | SB-7 | | SB-8 | | SB-8 | | SB-8 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Lab Sample Delivery Group | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | Field Sample Date | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | Field Sample ID | 360175-SB-7-1 | | 360175-SB-8-0 | | 360175-SB-8-0.2 | | 360175-SB-8-1 | |
| | | Qc Code | FS | | FS | | FS | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | Perfluorohexanoic acid (PFHxA) | NG/G | 0.221 | J | 0.199 | U | 0.199 | U | 0.199 | U |
| E1633 | Perfluorononanesulfonate | NG/G | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U |
| E1633 | Perfluorononanoic acid (PFNA) | NG/G | 0.168 | J+ | 0.199 | U | 0.0902 | J+ | 0.105 | J+ |
| E1633 | Perfluorooctanesulfonamide (PFOSA) | NG/G | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U |
| E1633 | Perfluorooctanesulfonic acid (PFOS) | NG/G | 1.05 | | 0.657 | | 1.64 | | 1.06 | |
| E1633 | Perfluorooctanoic acid (PFOA) | NG/G | 0.136 | J | 0.199 | U | 0.199 | U | 0.114 | J+ |
| E1633 | Perfluoropentanesulfonic acid (PFPeS) | NG/G | 0.2 | U | 0.199 | U | 0.199 | U | 0.199 | U |
| E1633 | Perfluoropentanoic acid (PFPeA) | NG/G | 0.26 | J | 0.398 | U | 0.399 | U | 0.399 | U |
| E1633 | Perfluorotetradecanoic acid (PFTeDA) | NG/G | 0.2 | U | 0.163 | J | 0.0737 | J | 0.199 | U |
| E1633 | Perfluorotridecanoic acid (PFTrDA) | NG/G | 0.2 | U | 0.168 | J | 0.146 | J | 0.199 | U |
| E1633 | Perfluoroundecanoic acid (PFUnA) | NG/G | 0.125 | J | 0.324 | | 0.123 | J | 0.199 | U |
| D2216 | Percent Moisture | PERCEN | 15.3 | | 15.3 | | 16.8 | | 17.4 | |


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Checked by: ALJ 2/6/2024

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Location** | SB-8 | | SB-8 | | SB-9 | | SB-9 | |
| | | **Lab Sample Delivery Group** | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | **Field Sample Date** | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | **Field Sample ID** | 360175-SB-8-2 | | 360175-SB-8-5 | | 360175-SB-9-0 | | 360175-SB-9-2 | |
| | | **Qc Code** | FS | | FS | | FS | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NG/G | 0.796 | U | 0.792 | U | 0.8 | U | 0.798 | U |
| E1633 | 2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA) | NG/G | 4.97 | U | 4.95 | U | 5 | U | 4.99 | U |
| E1633 | 3-Perfluoroheptyl propanoic acid (7:3FTCA) | NG/G | 4.97 | U | 4.95 | U | 5 | U | 4.99 | U |
| E1633 | 3-Perfluoropropyl propanoic acid (3:3FTCA) | NG/G | 0.995 | U | 0.99 | U | 1 | U | 0.998 | U |
| E1633 | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NG/G | 0.796 | U | 0.792 | U | 0.8 | U | 0.798 | U |
| E1633 | 4:2 Fluorotelomer sulfonic acid (4:2FTS) | NG/G | 0.796 | U | 0.792 | U | 8 | U | 0.798 | U |
| E1633 | 6:2 Fluorotelomer sulfonic acid (6:2FTS) | NG/G | 0.995 | U | 0.99 | U | 10 | U | 0.998 | U |
| E1633 | 8:2 Fluorotelomer sulfonic acid (8:2FTS) | NG/G | 0.995 | U | 0.99 | U | 10 | U | 0.998 | U |
| E1633 | 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) | NG/G | 0.796 | U | 0.792 | U | 0.8 | U | 0.798 | U |
| E1633 | Hexafluoropropylene oxide dimer acid (HFPO-DA) | NG/G | 0.796 | U | 0.792 | U | 0.8 | U | 0.798 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamide (NEtFOSA) | NG/G | 0.199 | U | 0.198 | U | 0.2 | U | 0.2 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE) | NG/G | 1.99 | U | 1.98 | U | 2 | U | 2 | U |
| E1633 | N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NG/G | 0.199 | U | 0.198 | U | 2.17 | | 0.0967 | J |
| E1633 | N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | NG/G | 0.199 | U | 0.198 | U | 0.2 | U | 0.2 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamidoethanol (NMEFOSE) | NG/G | 1.99 | U | 1.98 | U | 2 | U | 2 | U |
| E1633 | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NG/G | 0.199 | U | 0.198 | U | 0.126 | J+ | 0.2 | U |
| E1633 | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NG/G | 0.398 | U | 0.396 | U | 0.4 | U | 0.399 | U |
| E1633 | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | NG/G | 0.398 | U | 0.396 | U | 0.4 | U | 0.399 | U |
| E1633 | Perfluoro-3-methoxypropanoic acid (PFMPA) | NG/G | 0.398 | U | 0.396 | U | 0.4 | U | 0.399 | U |
| E1633 | Perfluoro-4-methoxybutanoic acid (PFMBA) | NG/G | 0.398 | U | 0.396 | U | 0.4 | U | 0.399 | U |
| E1633 | Perfluorobutanesulfonic acid (PFBS) | NG/G | 0.199 | U | 0.198 | U | 0.2 | U | 0.0605 | J+ |
| E1633 | Perfluorobutanoic acid (PFBA) | NG/G | 0.796 | U | 0.792 | U | 0.129 | J | 0.798 | U |
| E1633 | Perfluorodecanesulfonic acid (PFDS) | NG/G | 0.199 | U | 0.198 | U | 1.35 | | 0.285 | |
| E1633 | Perfluorodecanoic acid (PFDA) | NG/G | 0.199 | U | 0.198 | U | 1.84 | | 1.12 | |
| E1633 | Perfluorododecanesulfonic acid (PFDoS) | NG/G | 0.199 | U | 0.198 | U | 0.2 | U | 0.2 | U |
| E1633 | Perfluorododecanoic acid (PFDoA) | NG/G | 0.199 | U | 0.198 | U | 1.58 | | 0.177 | J |
| E1633 | Perfluoroheptanesulfonic acid (PFHpS) | NG/G | 0.199 | U | 0.198 | U | 0.2 | U | 0.2 | U |
| E1633 | Perfluoroheptanoic acid (PFHpA) | NG/G | 0.199 | U | 0.198 | U | 0.135 | J+ | 0.2 | U |
| E1633 | Perfluorohexanesulfonic acid (PFHxS) | NG/G | 0.199 | U | 0.198 | U | 0.2 | U | 0.2 | U |


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Checked by: ALJ 2/6/2024

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | Location | SB-8 | | SB-8 | | SB-9 | | SB-9 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Lab Sample Delivery Group | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | | 620-14747-1 | |
| | | Field Sample Date | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | | 10/18/2023 | |
| | | Field Sample ID | 360175-SB-8-2 | | 360175-SB-8-5 | | 360175-SB-9-0 | | 360175-SB-9-2 | |
| | | Qc Code | FS | | FS | | FS | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | Perfluorohexanoic acid (PFHxA) | NG/G | 0.199 | U | 0.198 | U | 0.2 | U | 0.2 | U |
| E1633 | Perfluorononanesulfonate | NG/G | 0.199 | U | 0.198 | U | 0.2 | U | 0.2 | U |
| E1633 | Perfluorononanoic acid (PFNA) | NG/G | 0.0819 | J+ | 0.198 | U | 0.484 | J+ | 0.248 | J+ |
| E1633 | Perfluorooctanesulfonamide (PFOSA) | NG/G | 0.199 | U | 0.198 | U | 0.0758 | J | 0.2 | U |
| E1633 | Perfluorooctanesulfonic acid (PFOS) | NG/G | 0.955 | | 0.326 | | 3.15 | | 1.31 | |
| E1633 | Perfluorooctanoic acid (PFOA) | NG/G | 0.118 | J+ | 0.0644 | J+ | 0.489 | J+ | 0.156 | J+ |
| E1633 | Perfluoropentanesulfonic acid (PFPeS) | NG/G | 0.199 | U | 0.198 | U | 0.2 | U | 0.2 | U |
| E1633 | Perfluoropentanoic acid (PFPeA) | NG/G | 0.398 | U | 0.396 | U | 0.4 | U | 0.399 | U |
| E1633 | Perfluorotetradecanoic acid (PFTeDA) | NG/G | 0.199 | U | 0.198 | U | 0.644 | | 0.0788 | J |
| E1633 | Perfluorotridecanoic acid (PFTrDA) | NG/G | 0.199 | U | 0.198 | U | 0.625 | | 0.0655 | J |
| E1633 | Perfluoroundecanoic acid (PFUnA) | NG/G | 0.199 | U | 0.198 | U | 1.51 | | 0.251 | |
| D2216 | Percent Moisture | PERCEN | 15 | | 11.9 | | 22.4 | | 17.3 | |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | Location | QC | |
|---|---|---|---|---|
| | | Lab Sample Delivery Group | 620-14747-1 | |
| | | Field Sample Date | 10/18/2023 | |
| | | Field Sample ID | 360175-Source Blank | |
| | | Qc Code | FB | |
| **Method** | **Parameter** | **Units** | Result | Qualifier |
| E1633 | 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NG/L | 7.6 | U |
| E1633 | 2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA) | NG/L | 47.5 | U |
| E1633 | 3-Perfluoroheptyl propanoic acid (7:3FTCA) | NG/L | 47.5 | U |
| E1633 | 3-Perfluoropropyl propanoic acid (3:3FTCA) | NG/L | 9.5 | U |
| E1633 | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NG/L | 7.6 | U |
| E1633 | 4:2 Fluorotelomer sulfonic acid (4:2FTS) | NG/L | 7.6 | U |
| E1633 | 6:2 Fluorotelomer sulfonic acid (6:2FTS) | NG/L | 7.6 | U |
| E1633 | 8:2 Fluorotelomer sulfonic acid (8:2FTS) | NG/L | 7.6 | U |
| E1633 | 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) | NG/L | 7.6 | U |
| E1633 | Hexafluoropropylene oxide dimer acid (HFPO-DA) | NG/L | 7.6 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamide (NEtFOSA) | NG/L | 1.9 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE) | NG/L | 19 | U |
| E1633 | N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NG/L | 1.9 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | NG/L | 1.9 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamidoethanol (NMEFOSE) | NG/L | 19 | U |
| E1633 | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NG/L | 3.8 | U |
| E1633 | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NG/L | 3.8 | U |
| E1633 | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | NG/L | 3.8 | U |
| E1633 | Perfluoro-3-methoxypropanoic acid (PFMPA) | NG/L | 3.8 | U |
| E1633 | Perfluoro-4-methoxybutanoic acid (PFMBA) | NG/L | 3.8 | U |
| E1633 | Perfluorobutanesulfonic acid (PFBS) | NG/L | 1.9 | U |
| E1633 | Perfluorobutanoic acid (PFBA) | NG/L | 7.6 | U |
| E1633 | Perfluorodecanesulfonic acid (PFDS) | NG/L | 1.9 | U |
| E1633 | Perfluorodecanoic acid (PFDA) | NG/L | 1.9 | U |
| E1633 | Perfluorododecanesulfonic acid (PFDoS) | NG/L | 1.9 | U |
| E1633 | Perfluorododecanoic acid (PFDoA) | NG/L | 1.9 | U |
| E1633 | Perfluoroheptanesulfonic acid (PFHpS) | NG/L | 1.9 | U |
| E1633 | Perfluoroheptanoic acid (PFHpA) | NG/L | 1.9 | U |
| E1633 | Perfluorohexanesulfonic acid (PFHxS) | NG/L | 1.9 | U |
| E1633 | Perfluorohexanoic acid (PFHxA) | NG/L | 1.9 | U |
| E1633 | Perfluorononanesulfonate | NG/L | 1.9 | U |
| E1633 | Perfluorononanoic acid (PFNA) | NG/L | 1.9 | U |
| E1633 | Perfluorooctanesulfonamide (PFOSA) | NG/L | 1.9 | U |
| E1633 | Perfluorooctanesulfonic acid (PFOS) | NG/L | 1.9 | U |
| E1633 | Perfluorooctanoic acid (PFOA) | NG/L | 1.9 | U |
| E1633 | Perfluoropentanesulfonic acid (PFPeS) | NG/L | 1.9 | U |
| E1633 | Perfluoropentanoic acid (PFPeA) | NG/L | 3.8 | U |

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | **Location** | QC | |
|---|---|---|---|---|
| | | **Lab Sample Delivery Group** | 620-14747-1 | |
| | | **Field Sample Date** | 10/18/2023 | |
| | | **Field Sample ID** | 360175-Source Blank | |
| | | **Qc Code** | FB | |
| **Method** | **Parameter** | **Units** | Result | Qualifier |
| E1633 | Perfluorotetradecanoic acid (PFTeDA) | NG/L | 1.9 | U |
| E1633 | Perfluorotridecanoic acid (PFTrDA) | NG/L | 1.9 | U |
| E1633 | Perfluoroundecanoic acid (PFUnA) | NG/L | 1.9 | U |

TABLE 3 - SUMMARY OF QUALIFICATION ACTIONS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| Lab SDG | Lab Sample ID | Field Sample ID | Method | Fraction | Parameter | Lab Result | Lab Qualifier | Final Result | Final Qualifier | Val Reason Code | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 620-14747-1 | 620-14747-1 | 360175-SB-7-0 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.191 | J | 0.191 | J+ | LCSH, MSH | NG/G |
| 620-14747-1 | 620-14747-27 | 360175-SB-4-0 | E1633 | N | N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | 0.11 | J I | 0.11 | J | IR | NG/G |
| 620-14747-1 | 620-14747-1 | 360175-SB-7-0 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.366 | | 0.366 | J+ | MSH | NG/G |
| 620-14747-1 | 620-14747-1 | 360175-SB-7-0 | E1633 | N | Perfluorobutanesulfonic acid (PFBS) | 0.0796 | J I | 0.0796 | J | IR | NG/G |
| 620-14747-1 | 620-14747-10 | 360175-SB-3A-0 | E1633 | N | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | 0.111 | J | 0.111 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-27 | 360175-SB-4-0 | E1633 | N | Perfluorobutanesulfonic acid (PFBS) | 0.121 | J I | 0.121 | J+ | LCSH, IR | NG/G |
| 620-14747-1 | 620-14747-10 | 360175-SB-3A-0 | E1633 | N | Perfluorododecanoic acid (PFDoA) | 2.26 | | 2.26 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-10 | 360175-SB-3A-0 | E1633 | N | Perfluoroundecanoic acid (PFUnA) | 0.837 | | 0.837 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-10 | 360175-SB-3A-0 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.157 | J | 0.157 | J+ | LCSH, FD | NG/G |
| 620-14747-1 | 620-14747-31 | 360175-SB-9-2 | E1633 | N | Perfluorobutanesulfonic acid (PFBS) | 0.0605 | J I | 0.0605 | J+ | LCSH, IR | NG/G |
| 620-14747-1 | 620-14747-11 | 360175-SB-3A-0 D | E1633 | N | Perfluorododecanoic acid (PFDoA) | 2.08 | | 2.08 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-11 | 360175-SB-3A-0 D | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.221 | | 0.221 | J+ | LCSH, FD | NG/G |
| 620-14747-1 | 620-14747-11 | 360175-SB-3A-0 D | E1633 | N | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | 0.0899 | J | 0.0899 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-11 | 360175-SB-3A-0 D | E1633 | N | Perfluoroundecanoic acid (PFUnA) | 0.794 | | 0.794 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-14 | 360175-SB-1A-0 | E1633 | N | Perfluorododecanoic acid (PFDoA) | 0.0864 | J I | 0.0864 | J+ | LCSH, IR | NG/G |
| 620-14747-1 | 620-14747-12 | 360175-SB-3A-2 | E1633 | N | Perfluoropentanoic acid (PFPeA) | 0.171 | J I | 0.171 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-11 | 360175-SB-3A-0 D | E1633 | N | Perfluoroheptanoic acid (PFHpA) | 0.0658 | J I | 0.0658 | J | IR | NG/G |
| 620-14747-1 | 620-14747-12 | 360175-SB-3A-2 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.108 | J *+ | 0.108 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-12 | 360175-SB-3A-2 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.558 | | 0.558 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-13 | 360175-SB-3A-5 | E1633 | N | N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | 0.166 | J | 0.166 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-13 | 360175-SB-3A-5 | E1633 | N | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | 0.137 | J | 0.137 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-13 | 360175-SB-3A-5 | E1633 | N | Perfluoroundecanoic acid (PFUnA) | 0.0509 | J | 0.0509 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-14 | 360175-SB-1A-0 | E1633 | N | Perfluoroundecanoic acid (PFUnA) | 0.1 | J | 0.1 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-14 | 360175-SB-1A-0 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.195 | J | 0.195 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-14 | 360175-SB-1A-0 | E1633 | N | Perfluoroheptanoic acid (PFHpA) | 0.113 | J I | 0.113 | J | IR | NG/G |
| 620-14747-1 | 620-14747-14 | 360175-SB-1A-0 | E1633 | N | Perfluorohexanoic acid (PFHxA) | 0.152 | J | 0.152 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-16 | 360175-SB-1A-5 | E1633 | N | Perfluoroheptanoic acid (PFHpA) | 0.0507 | J I | 0.0507 | J | IR | NG/G |
| 620-14747-1 | 620-14747-25 | 360175-SB-6-2 | E1633 | N | Perfluoroheptanoic acid (PFHpA) | 0.0552 | J I | 0.0552 | J+ | LCSH, IR | NG/G |
| 620-14747-1 | 620-14747-15 | 360175-SB-1A-2 | E1633 | N | Perfluorohexanoic acid (PFHxA) | 0.117 | J | 0.117 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-15 | 360175-SB-1A-2 | E1633 | N | Perfluoropentanoic acid (PFPeA) | 0.13 | J I | 0.13 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-30 | 360175-SB-9-0 | E1633 | N | Perfluoroheptanoic acid (PFHpA) | 0.135 | J I | 0.135 | J+ | LCSH, IR | NG/G |
| 620-14747-1 | 620-14747-1 | 360175-SB-7-0 | E1633 | N | Perfluorohexanoic acid (PFHxA) | 0.0892 | J F2 I | 0.0892 | J+ | MSH, MSRPD, IR | NG/G |
| 620-14747-1 | 620-14747-16 | 360175-SB-1A-5 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.221 | | 0.221 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-16 | 360175-SB-1A-5 | E1633 | N | N-Ethyl perfluorooctane sulfonamide (NEtFOSA) | 0.198 | U | 0.198 | UJ | EIS | NG/G |
| 620-14747-1 | 620-14747-12 | 360175-SB-3A-2 | E1633 | N | Perfluorohexanoic acid (PFHxA) | 0.0843 | J I | 0.0843 | J+ | LCSH, IR | NG/G |
| 620-14747-1 | 620-14747-16 | 360175-SB-1A-5 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.364 | *+ | 0.364 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-18 | 360175-SB-8-0.2 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.0902 | J *+ | 0.0902 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-19 | 360175-SB-8-1 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.105 | J *+ | 0.105 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-19 | 360175-SB-8-1 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.114 | J | 0.114 | J+ | LCSH | NG/G |


Created by: KLD 2/6/2024
Checked by: ALJ 2/6/2024

TABLE 3 - SUMMARY OF QUALIFICATION ACTIONS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| Lab SDG | Lab Sample ID | Field Sample ID | Method | Fraction | Parameter | Lab Result | Lab Qualifier | Final Result | Final Qualifier | Val Reason Code | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 620-14747-1 | 620-14747-2 | 360175-SB-7-1 | E1633 | N | Perfluorohexanoic acid (PFHxA) | 0.221 | I | 0.221 | J | IR | NG/G |
| 620-14747-1 | 620-14747-2 | 360175-SB-7-1 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.168 | J | 0.168 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-22 | 360175-SB-6-0 | E1633 | N | Perfluorohexanoic acid (PFHxA) | 0.32 | I | 0.32 | J | IR | NG/G |
| 620-14747-1 | 620-14747-20 | 360175-SB-8-2 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.118 | J | 0.118 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-21 | 360175-SB-8-5 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.0644 | J | 0.0644 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-22 | 360175-SB-6-0 | E1633 | N | Perfluoropentanoic acid (PFPeA) | 0.343 | J | 0.343 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-22 | 360175-SB-6-0 | E1633 | N | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | 0.055 | J | 0.055 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-22 | 360175-SB-6-0 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.502 | | 0.502 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-22 | 360175-SB-6-0 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.209 | *+ | 0.209 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-22 | 360175-SB-6-0 | E1633 | N | Perfluorobutanesulfonic acid (PFBS) | 0.112 | J | 0.112 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-24 | 360175-SB-6-1 | E1633 | N | Perfluorohexanoic acid (PFHxA) | 0.264 | I | 0.264 | J | IR | NG/G |
| 620-14747-1 | 620-14747-22 | 360175-SB-6-0 | E1633 | N | Perfluoroheptanoic acid (PFHpA) | 0.112 | J | 0.112 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-23 | 360175-SB-6-0.2 | E1633 | N | Perfluoropentanoic acid (PFPeA) | 0.23 | J | 0.23 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-23 | 360175-SB-6-0.2 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.306 | | 0.306 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-23 | 360175-SB-6-0.2 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.141 | J *+ | 0.141 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-23 | 360175-SB-6-0.2 | E1633 | N | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | 0.095 | J | 0.095 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-23 | 360175-SB-6-0.2 | E1633 | N | Perfluoroheptanoic acid (PFHpA) | 0.0718 | J | 0.0718 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-32 | 360175-SB-10-1 | E1633 | N | Perfluorohexanoic acid (PFHxA) | 0.395 | I | 0.395 | J | IR | NG/G |
| 620-14747-1 | 620-14747-24 | 360175-SB-6-1 | E1633 | N | Perfluoroheptanoic acid (PFHpA) | 0.0691 | J | 0.0691 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-24 | 360175-SB-6-1 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.228 | | 0.228 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-24 | 360175-SB-6-1 | E1633 | N | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | 0.0731 | J | 0.0731 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-24 | 360175-SB-6-1 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.0926 | J *+ | 0.0926 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-24 | 360175-SB-6-1 | E1633 | N | Perfluoropentanoic acid (PFPeA) | 0.326 | J I | 0.326 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-10 | 360175-SB-3A-0 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.557 | I *+ | 0.557 | J+ | LCSH, IR | NG/G |
| 620-14747-1 | 620-14747-25 | 360175-SB-6-2 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.0626 | J *+ | 0.0626 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-25 | 360175-SB-6-2 | E1633 | N | Perfluoropentanoic acid (PFPeA) | 0.153 | J | 0.153 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-25 | 360175-SB-6-2 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.114 | J | 0.114 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-11 | 360175-SB-3A-0 D | E1633 | N | Perfluorononanoic acid (PFNA) | 0.467 | I *+ | 0.467 | J+ | LCSH, IR | NG/G |
| 620-14747-1 | 620-14747-26 | 360175-SB-6-5 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.0784 | J | 0.0784 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-27 | 360175-SB-4-0 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.122 | J | 0.122 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-14 | 360175-SB-1A-0 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.149 | J I *+ | 0.149 | J+ | LCSH, IR | NG/G |
| 620-14747-1 | 620-14747-15 | 360175-SB-1A-2 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.514 | I *+ | 0.514 | J+ | LCSH, IR | NG/G |
| 620-14747-1 | 620-14747-28 | 360175-SB-4-2 | E1633 | N | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | 0.135 | J | 0.135 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-28 | 360175-SB-4-2 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.11 | J *+ | 0.11 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-28 | 360175-SB-4-2 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.109 | J | 0.109 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-29 | 360175-SB-4-5 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.07 | J *+ | 0.07 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-3 | 360175-SB-5-0 | E1633 | N | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | 0.123 | J | 0.123 | J+ | LCSH, MSH | NG/G |
| 620-14747-1 | 620-14747-3 | 360175-SB-5-0 | E1633 | N | Perfluorododecanoic acid (PFDoA) | 0.577 | | 0.577 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-3 | 360175-SB-5-0 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.185 | J F1 *+ | 0.185 | J+ | LCSH, MSH | NG/G |


Created by: KLD 2/6/2024
Checked by: ALJ 2/6/2024

TABLE 3 - SUMMARY OF QUALIFICATION ACTIONS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| Lab SDG | Lab Sample ID | Field Sample ID | Method | Fraction | Parameter | Lab Result | Lab Qualifier | Final Result | Final Qualifier | Val Reason Code | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 620-14747-1 | 620-14747-4 | 360175-SB-5-0 D | E1633 | N | Perfluorononanoic acid (PFNA) | 0.187 | J I | 0.187 | J+ | LCSH, MSH, IR | NG/G |
| 620-14747-1 | 620-14747-3 | 360175-SB-5-0 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.202 | | 0.202 | J+ | LCSH, MSH | NG/G |
| 620-14747-1 | 620-14747-3 | 360175-SB-5-0 | E1633 | N | Perfluoropentanoic acid (PFPeA) | 0.139 | J I F1 | 0.139 | J+ | LCSH, MSH | NG/G |
| 620-14747-1 | 620-14747-30 | 360175-SB-9-0 | E1633 | N | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | 0.126 | J | 0.126 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-20 | 360175-SB-8-2 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.0819 | J I *+ | 0.0819 | J+ | LCSH, IR | NG/G |
| 620-14747-1 | 620-14747-30 | 360175-SB-9-0 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.484 | *+ | 0.484 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-26 | 360175-SB-6-5 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.195 | J I *+ | 0.195 | J+ | LCSH, IR | NG/G |
| 620-14747-1 | 620-14747-30 | 360175-SB-9-0 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.489 | | 0.489 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-31 | 360175-SB-9-2 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.248 | *+ | 0.248 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-3 | 360175-SB-5-0 | E1633 | N | Perfluoroundecanoic acid (PFUnA) | 0.254 | | 0.254 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-31 | 360175-SB-9-2 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.156 | J | 0.156 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-32 | 360175-SB-10-1 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.653 | *+ | 0.653 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-32 | 360175-SB-10-1 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.473 | | 0.473 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-32 | 360175-SB-10-1 | E1633 | N | Perfluoroheptanoic acid (PFHpA) | 0.183 | J | 0.183 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-32 | 360175-SB-10-1 | E1633 | N | Perfluoropentanoic acid (PFPeA) | 0.34 | J I | 0.34 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-7 | 360175-SB-2A-0 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.122 | J I *+ | 0.122 | J+ | LCSH, IR | NG/G |
| 620-14747-1 | 620-14747-30 | 360175-SB-9-0 | E1633 | N | Perfluorooctanesulfonamide (PFOSA) | 0.0758 | J I | 0.0758 | J | IR | NG/G |
| 620-14747-1 | 620-14747-5 | 360175-SB-5-2 | E1633 | N | Perfluorohexanoic acid (PFHxA) | 0.0697 | J | 0.0697 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-5 | 360175-SB-5-2 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.352 | | 0.352 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-5 | 360175-SB-5-2 | E1633 | N | Perfluoroheptanesulfonic acid (PFHpS) | 0.0973 | J | 0.0973 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-5 | 360175-SB-5-2 | E1633 | N | Perfluoropentanoic acid (PFPeA) | 0.187 | J I | 0.187 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-5 | 360175-SB-5-2 | E1633 | N | Perfluorononanoic acid (PFNA) | 1.29 | *+ | 1.29 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-6 | 360175-SB-5-5 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.138 | J *+ | 0.138 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-6 | 360175-SB-5-5 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.106 | J | 0.106 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-6 | 360175-SB-5-5 | E1633 | N | Perfluorobutanesulfonic acid (PFBS) | 0.0583 | J | 0.0583 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-7 | 360175-SB-2A-0 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.163 | J | 0.163 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-7 | 360175-SB-2A-0 | E1633 | N | Perfluoroundecanoic acid (PFUnA) | 0.358 | | 0.358 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-7 | 360175-SB-2A-0 | E1633 | N | N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | 0.432 | | 0.432 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-7 | 360175-SB-2A-0 | E1633 | N | Perfluorododecanoic acid (PFDoA) | 0.768 | | 0.768 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-7 | 360175-SB-2A-0 | E1633 | N | Perfluorobutanesulfonic acid (PFBS) | 0.0517 | J | 0.0517 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-8 | 360175-SB-2A-2 | E1633 | N | Perfluorooctanesulfonic acid (PFOS) | 4.08 | I | 4.08 | J | IR | NG/G |
| 620-14747-1 | 620-14747-7 | 360175-SB-2A-0 | E1633 | N | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | 0.2 | | 0.2 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-8 | 360175-SB-2A-2 | E1633 | N | Perfluoropentanoic acid (PFPeA) | 0.134 | J I | 0.134 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-8 | 360175-SB-2A-2 | E1633 | N | Perfluorooctanoic acid (PFOA) | 1.18 | | 1.18 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-15 | 360175-SB-1A-2 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.178 | J I | 0.178 | J+ | LCSH, IR | NG/G |
| 620-14747-1 | 620-14747-8 | 360175-SB-2A-2 | E1633 | N | Perfluorobutanesulfonic acid (PFBS) | 0.132 | J | 0.132 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-8 | 360175-SB-2A-2 | E1633 | N | Perfluorohexanoic acid (PFHxA) | 0.117 | J | 0.117 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-8 | 360175-SB-2A-2 | E1633 | N | Perfluoroheptanesulfonic acid (PFHpS) | 0.223 | | 0.223 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-8 | 360175-SB-2A-2 | E1633 | N | Perfluorononanoic acid (PFNA) | 2.85 | *+ | 2.85 | J+ | LCSH | NG/G |


Created by: KLD 2/6/2024
Checked by: ALJ 2/6/2024

TABLE 3 - SUMMARY OF QUALIFICATION ACTIONS
DATA USABILITY SUMMARY REPORT
OCTOBER 2023 SOIL SAMPLING
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| Lab SDG | Lab Sample ID | Field Sample ID | Method | Fraction | Parameter | Lab Result | Lab Qualifier | Final Result | Final Qualifier | Val Reason Code | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 620-14747-1 | 620-14747-9 | 360175-SB-2A-5 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.289 | *+ | 0.289 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-9 | 360175-SB-2A-5 | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.12 | J | 0.12 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-9 | 360175-SB-2A-5 | E1633 | N | Perfluorobutanesulfonic acid (PFBS) | 0.061 | J | 0.061 | J+ | LCSH | NG/G |
| 620-14747-1 | 620-14747-4 | 360175-SB-5-0 D | E1633 | N | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | 0.123 | J | 0.123 | J+ | MSH | NG/G |
| 620-14747-1 | 620-14747-4 | 360175-SB-5-0 D | E1633 | N | Perfluorooctanoic acid (PFOA) | 0.202 | | 0.202 | J+ | MSH | NG/G |
| 620-14747-1 | 620-14747-4 | 360175-SB-5-0 D | E1633 | N | Perfluoropentanoic acid (PFPeA) | 0.139 | J I F1 | 0.139 | J+ | MSH | NG/G |

**ATTACHMENT A**
**SUMMARY OF VALIDATION QC LIMITS FOR SURROGATES, SPIKES, AND DUPLICATES**
**BASED ON THE REGION 2 VALIDATION GUIDELINES**

| PARAMETER | QC TEST | ANALYTE | SOIL (%R) | SOIL (RPD) |
|---|---|---|---|---|
| Per- and Polyfluorinated Alkyl Substances (PFAS) | Surrogate | All Surrogate Compounds | 50 - 150 | |
| | LCS | All Target Compounds | 70 - 130 | |
| | MS/MSD | All Target Compounds | 70 - 130 | 30 |
| | Field Duplicate | All Target Compounds | | 30 |

# DATA USABILITY SUMMARY REPORT
# OCTOBER 2023 SOIL SAMPLING
# IRVINGTON RUGS AND CLEANERS
# IRVINGTON, NEW YORK

## ATTACHMENT B

# PFAS

**NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD**
**Project:** Irvington October 2023 Soil
**Method:** USEPA 1633
**Laboratory:** Eurofins Lancaster (PA); subbed by RI **SDG(s):** 620-14747-1
**Date:** 2/5/2024
**Reviewer:** Amber Jones
Based on NYSDEC *Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids*, April 2023

**Review Level** [X] NYSDEC DUSR USEPA Region II Guideline

1. ☑ **Case Narrative Review and Data Package Completeness** COMMENTS
   Were problems noted? yes, see attached
   Were all the samples on the COC analyzed for the requested analyses? YES NO (circle one)
   Are Field Sample IDs and Locations assigned correctly? YES NO (circle one)

2. ☑ **Holding time and Sample Collection**
   Were all samples extracted within the 28 day holding time? Were aqueous sample extracts analyzed with 28 days of extraction, soil sample extracts within 40 days of extraction per NYSDEC Data Review Guidelines? YES NO (circle one)

   Were all samples received in proper containers at cooler temp ≤6 degrees C and protected from light? YES NO (circle one)

3. ☑ **QC Blanks**
   Are method blanks free of contamination? YES NO (circle one)
   Are rinse blanks free of contamination? YES NO NA (circle one)
   Are field reagent blanks free of contamination? YES NO NA (circle one)

   Per NYSDEC guidelines, there should be no detections in the method blanks greater than the RLs. EBs, RBs, FBs should be evaluated in the same manner as method blanks. Use the most contaminated blank to evaluate associated sample results.

   Use the following table from NYSDEC Data Review Guidelines for qualification actions:

| Blank Result | Sample Result | Qualification |
|---|---|---|
| Any detection | <Reporting limit | Qualify as ND at reporting limit |
| Any detection | >Reporting Limit and >10x the blank result | No qualification |
| >Reporting limit | >Reporting limit and <10x blank result | J+ biased high |

4. ☑ **Mass Calibration Verification – Data Package Narrative Review**
   Did the laboratory narrative identify any results that were not within method criteria? YES NO (circle one)
   If yes, use professional judgment to evaluate data and qualify results if needed

5. ☑ **Extracted Internal Standards [EIS]** (water/soil limits: 50-150%; poor performing analytes [PFBA, PFPeA, fluorotelomer sulfonates] limits: 25-150%) RTs within 0.4 minutes (24 seconds) of CCAL standard (or ICAL mid-point if samples follow ICAL)
   Were all extracted internal standard results within limits? YES NO (circle one) see attached - subset UJ, EIS
   Were any extracted internal standard recoveries < 10%? (use professional judgment; reject ND)

samples 23, 27, and 30 - results reported at a 1x and 10x dil - subset reported from the 10x dil due to EIS recoveries

6. ☑ **Non-extracted Internal Standards (NIS) [Instrument Injected Internal Standards] – Data Package Narrative Review**
(Area Limits = -50% to +100%, RTs within 0.4 minutes (24 seconds) of daily CCAL standard (or ICAL mid-point if samples follow ICAL))
Did the laboratory narrative identify any sample injected internal standards that were not within criteria? YES NO (circle one)

Did the laboratory qualify results based on injected internal standard exceedances? YES NO
If yes to above, use professional judgment to evaluate data and qualify results if needed

7. ☑ **Instrument Calibration – Data Package Narrative Review**
Did the laboratory narrative identify compounds that were not within criteria in the initial and/or continuing calibration standards? YES NO (circle one)

Initial Calibration %RSD ≤20, Continuing Calibration % R 70-130, ICV % R 70-130, see attached - high bias, samples ND - no quals

Did the laboratory qualify results based on initial or continuing calibration exceedances? YES NO

Are the Signal to Noise ratios for all target compounds > 3 in the low point standard? YES NO

Were branched isomers included in calibration standards for PFOS and other compounds where standards are available? YES NO

8. ☑ **Matrix Spike** (70-130%) see attached - subset J+, MSH
Were MS/MSDs submitted/analyzed? YES NO

Were all results within limits? YES NO NA (circle one)

9. ☑ **Field Duplicates** (water/soil RPD limit: ≤30)
Were Field Duplicates submitted/analyzed? YES NO see attached - subset J, FD

10. ☑ **Laboratory Control Sample Results** (70-130%)
Were all results within limits? YES NO (circle one) see attached - high bias - detections J+, LCSH

11. ☑ **Raw Data Review and Calculation Checks (Note: checks 13 and 14 apply to sample(s) selected for calculation checks and raw data review)** see attached for calculations

12. ☑ **Bile Salt Standard Retention Time (RT) Check**
Did the laboratory analyze a bile salt standard? (required by Method 1633 for all sample matrices) YES NO (circle one)

Is the RT of the bile salt standard >1 minute from the RT window for PFOS (including linear and branched isomers)? YES NO (circle one)

NOTE: Three bile acids (TDCA, TCDCA, and TUDCA) have the same (<1 amu) primary transition masses as PFOS: m/z 498.9 ->79.9 for PFOS, and m/z 499.2 ->79.9 for the bile acids. As a result, the presence of these bile acids in samples can cause high bias to PFOS concentrations if co-eluting with PFOS. The bile salt standard must demonstrate chromatographic separation so there is no co-elution with any PFOS isomer. no bile salt standard included in report

13. ☑ **Signal-to-Noise (S/N) Ratio for positive identification/detection of Target Analytes and EIS--**
From NYSDEC guidance (April 2023): *The signal to noise ratio for the primary ion should be at least 3:1. If the ratio is less than 3:1, the peak is discernable from the baseline noise and symmetrical, the result can be reported. If the peak appears to be baseline noise and/or the shape is irregular, qualify the result as tentatively identified.*

From Method 1633 4th Draft: Quantitation ions and confirmation ions S/N ≥ 3; or if no confirmation ion is expected (Method 1633 4th Draft Table 9), quantitation ion must have S/N ≥10, as described in Method 1633 4th Draft Section 15.1.1: *For target analytes or EISs to be identified, peak responses of the quantitation and confirmation ions must be at least three times the background noise level (S/N 3:1). The quantitation ion must have a S/N ≥ 10:1 if there is no confirmation ion* [specified in Table 9]. *If the S/N ratio is not met due to high background noise, the laboratory must correct the issue (e.g., perform instrument troubleshooting and any necessary maintenance, such as cleaning the ion source, replacing the LC column, or if needed, repeat the cleanup steps to remove background due to the sample matrix). If the S/N ratio is not met but the background is low, then the analyte is to be considered a non-detect.* Note: If lab result is <RL or <LOQ and expected confirmation ion is not detected, qualify U at RL, or LOD or sample concentration, as appropriate. If lab result is >RL or >LOQ and expected confirmation ion is not detected, review raw data and use professional judgment.

14. ☑ **Ion Abundance Ratio (IAR) for positive identification/detection of Target Analytes and EIS--**
    - Confirm transition ions in Method 1633 4th Draft Table 9 (or "*Analyte Ions Monitored, Extracted Internal Standard, and Non-extracted Internal Standard Used for Quantification*" table in current draft Method 1633) were used for all analytes
    - As defined in Method 1633 4th Draft Section 14.3.5: AreaQ1/AreaQ2 where Q1 and Q2 are primary and secondary transition masses for detected compounds. Acceptance criteria are based on comparison with ion ratios established by the ICAL midpoint standard or daily CCV. If secondary transition masses are identified in Method 1633 4th Draft Table 9 (or "*Analyte Ions Monitored, Extracted Internal Standard, and Non-extracted Internal Standard Used for Quantification*" table in current draft Method 1633), IAR must be within ±50% of IAR established for the ICAL midpoint standard or daily CCV per Section 15.1.3. Check ion ratios reported for LCS and samples.

see attached - subset J, IR

15. ☑ **Electronic Data Review and Edits**

    Does the EDD match the Form Is? YES NO (circle one)

lab applied I qualfiiers to results outside acceptance criteria - PFPeA was not qualified due to insufficent ion transition

16. ☑ **Tables**

    **Table 1** (Samples and Analytical Methods)
    **Table 2** (Analytical Results)
    **Table 3** (Qualification Actions)
    Were all tables produced and reviewed? YES NO (circle one)

## Job ID: 620-14747-1

### Laboratory: Eurofins New England

**Narrative**

**Job Narrative**
**620-14747-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**
The samples were received on 10/19/2023 2:00 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.4°C

**Receipt Exceptions**
The following sample was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): 360175-SB-7-0 (620-14747-1[MSD]) okay

**PFAS**
Method 1633: The recovery for labeled isotope: M2-6:2 FTS is outside the QC acceptance limits and biased high in the opening continuing calibration verification standard. Since the recovery for the labeled isotope is within QC limits in the following sample: 360175-SB-5-0 (620-14747-3), the data is reported. see attached for EIS review

Method 1633: The recovery for labeled isotope: M2-6:2 FTS is outside the QC acceptance limits and biased high in the closing continuing calibration verification standard. Since the recovery for the labeled isotope is within QC limits in the following samples: 360175-SB-1A-0 (620-14747-14), 360175-SB-1A-2 (620-14747-15) and 360175-SB-1A-5 (620-14747-16), the data is reported. see attached for EIS review

Method 1633: The recovery for target analyte 5:3 FTCA and 7:3 FTCA is outside the QC acceptance limits and biased high in the opening continuing calibration verification standard. Since the result is high and target 5:3 FTCA and 7:3 FTCA is not detected in the following samples: 360175-SB-1A-0 (620-14747-14), 360175-SB-1A-2 (620-14747-15) and 360175-SB-1A-5 (620-14747-16), the data is reported. high bias, samples ND - no quals

Method 1633: The recovery for target analyte 5:3 FTCA and 7:3 FTCA is outside the QC acceptance limits and biased high in the closing continuing calibration verification standard. Since the result is high and target 5:3 FTCA and 7:3 FTCA is not detected in the following samples: 360175-SB-5-2 (620-14747-5), 360175-SB-5-5 (620-14747-6), 360175-SB-2A-0 (620-14747-7), 360175-SB-2A-2 (620-14747-8), 360175-SB-2A-5 (620-14747-9), 360175-SB-3A-0 (620-14747-10), 360175-SB-3A-0 D (620-14747-11), 360175-SB-3A-2 (620-14747-12), 360175-SB-3A-5 (620-14747-13) and (620-14747-A-10-C DU), the data is reported. high bias, samples ND - no quals

Method 1633: The recovery for target analyte: Perfluorononanoic acid in the laboratory control spike samples associated with the following samples: 360175-SB-5-0 (620-14747-3), 360175-SB-5-2 (620-14747-5), 360175-SB-5-5 (620-14747-6), 360175-SB-2A-0 (620-14747-7), 360175-SB-2A-2 (620-14747-8), 360175-SB-2A-5 (620-14747-9), 360175-SB-3A-0 (620-14747-10), 360175-SB-3A-0 D (620-14747-11), 360175-SB-3A-2 (620-14747-12), 360175-SB-3A-5 (620-14747-13), 360175-SB-1A-0 (620-14747-14), 360175-SB-1A-2 (620-14747-15), 360175-SB-1A-5 (620-14747-16) and (620-14747-A-10-C DU) is outside the QC acceptance limits. The following action was taken: The client was contacted and the data is reported. see attached for LCS review

Method 1633: The recovery for a target analyte(s) Perfluorononanoic acid in the laboratory control spike samples associated with the following samples: 360175-SB-8-0.2 (620-14747-18), 360175-SB-8-1 (620-14747-19), 360175-SB-8-2 (620-14747-20), 360175-SB-6-0 (620-14747-22), 360175-SB-6-0.2 (620-14747-23), 360175-SB-6-1 (620-14747-24), 360175-SB-6-2 (620-14747-25), 360175-SB-6-5 (620-14747-26), 360175-SB-4-2 (620-14747-28), 360175-SB-4-5 (620-14747-29), 360175-SB-9-0 (620-14747-30), 360175-SB-9-2 (620-14747-31), 360175-SB-10-1 (620-14747-32) and (620-14747-A-32-B DU) is outside the QC acceptance limits. The following action was taken: The client was contacted and the data is reported. see attached for LCS review

## Job ID: 620-14747-1 (Continued)

### Laboratory: Eurofins New England (Continued)

Method 1633: The recovery for target analyte Perfluorononanoic acid is outside of QC acceptance limits in the laboratory control spike samples associated with samples: 360175-SB-8-0 (620-14747-17), 360175-SB-8-5 (620-14747-21) and 360175-SB-4-0 (620-14747-27) . Since the result is high and target analyte Perfluorononanoic acid is not detected in the samples, the data is reported. see attached for LCS review

Method 1633: The recovery for labeled isotope: M2-6:2 FTS is outside the QC acceptance limits in the opening continuing calibration verification standard, biased high. Since the recovery for the labeled isotope is within QC limits in the following sample: 360175-Source Blank (620-14747-33) , the data is reported. EIS in QC sample - no quals

Method 1633: The recovery for target analyte Perfluorooctanoic acid is outside of QC acceptance limits in the laboratory control spike samples associated with samples: 360175-Source Blank (620-14747-33) . Since the result is high and target analyte Perfluorooctanoic acid is not detected in the samples, the data is reported. associated with FB only - no quals

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**General Chemistry**
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

| Isotope Dilution | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| 13C4 PFBA | 96.8 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| 13C5 PFPeA | 103 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| 13C5 PFHxA | 100 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| 13C4 PFHpA | 115 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| 13C8 PFOA | 118 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| 13C9 PFNA | 98.6 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| 13C6 PFDA | 91.3 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| 13C7 PFUnA | 88.5 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| 13C2-PFDoDA | 90.7 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| 13C2 PFTeDA | 81.2 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| 13C3 PFBS | 104 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| 13C3 PFHxS | 102 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| 13C8 PFOS | 96.8 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| 13C8 FOSA | 104 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| d3-NMeFOSAA | 101 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| d5-NEtFOSAA | 90.6 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| M2-4:2 FTS | 101 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| M2-6:2 FTS | 113 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| M2-8:2 FTS | 93.6 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| 13C3 HFPO-DA | 100 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| d7-N-MeFOSE-M | 79.0 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| d9-N-EtFOSE-M | 75.0 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| d5-NEtPFOSA | 77.2 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |
| d3-NMePFOSA | 83.5 | | 20 - 150 | 11/01/23 07:11 | 11/16/23 15:17 | 1 |

**Lab Sample ID: LCS 410-438117/2-A**
**Matrix: Solid**
**Analysis Batch: 444158**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 438117**

70-130

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid | 10.0 | 11.08 | | ng/g | | 111 | 40 - 150 |
| Perfluoropentanoic acid | 5.01 | 5.617 | | ng/g | | 112 | 40 - 150 |
| Perfluorohexanoic acid | 2.50 | 2.884 | | ng/g | | 115 | 40 - 150 |
| Perfluoroheptanoic acid | 2.50 | 2.358 | | ng/g | | 94 | 40 - 150 |
| Perfluorooctanoic acid | 2.50 | 2.913 | | ng/g | | 116 | 40 - 150 |
| Perfluorononanoic acid | 2.50 | 3.439 | | ng/g | | 137 | 40 - 150 |
| Perfluorodecanoic acid | 2.50 | 2.898 | | ng/g | | 116 | 40 - 150 |
| Perfluoroundecanoic acid | 2.50 | 2.760 | | ng/g | | 110 | 40 - 150 |
| Perfluorododecanoic acid | 2.50 | 2.726 | | ng/g | | 109 | 40 - 150 |
| Perfluorotridecanoic acid | 2.50 | 2.766 | | ng/g | | 110 | 40 - 150 |
| Perfluorotetradecanoic acid | 2.50 | 2.947 | | ng/g | | 118 | 40 - 150 |
| Perfluorobutanesulfonic acid | 2.22 | 2.577 | | ng/g | | 116 | 40 - 150 |
| Perfluoropentanesulfonic acid | 2.36 | 2.652 | | ng/g | | 113 | 40 - 150 |
| Perfluorohexanesulfonic acid | 2.29 | 2.521 | | ng/g | | 110 | 40 - 150 |
| Perfluoroheptanesulfonic acid | 2.39 | 2.614 | | ng/g | | 110 | 40 - 150 |
| Perfluorooctanesulfonic acid | 2.32 | 2.613 | | ng/g | | 112 | 40 - 150 |
| Perfluorononanesulfonic acid | 2.41 | 2.629 | | ng/g | | 109 | 40 - 150 |
| Perfluorodecanesulfonic acid | 2.42 | 2.632 | | ng/g | | 109 | 40 - 150 |
| Perfluorododecanesulfonic acid (PFDoS) | 2.43 | 2.387 | | ng/g | | 98 | 40 - 150 |
| 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2) | 9.39 | 10.53 | | ng/g | | 112 | 40 - 150 |

associated with samples 1,2,4

high bias, detections J+, LCSH

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: LCS 410-438117/2-A**
**Matrix: Solid**
**Analysis Batch: 444158** associated with samples 1,2,4

70-130

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 438117**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | 9.52 | 9.828 | | ng/g | | 103 | 40 - 150 |
| 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | 9.62 | 11.04 | | ng/g | | 115 | 40 - 150 |
| Perfluorooctanesulfonamide | 2.50 | 2.500 | | ng/g | | 100 | 40 - 150 |
| NMeFOSA | 2.50 | 2.579 | | ng/g | | 103 | 40 - 150 |
| N-ethylperfluoro-1-octanesulfonamide | 2.50 | 2.553 | | ng/g | | 102 | 40 - 150 |
| NMeFOSAA | 2.50 | 2.807 | | ng/g | | 112 | 40 - 150 |
| NEtFOSAA | 2.50 | 2.943 | | ng/g | | 118 | 40 - 150 |
| 2-(N-methylperfluoro-1-octanesulfonamido) ethanol | 25.0 | 26.58 | | ng/g | | 106 | 40 - 150 |
| 2-(N-ethylperfluoro-1-octanesulfonamido) ethanol | 25.0 | 29.77 | | ng/g | | 119 | 40 - 150 |
| HFPO-DA | 10.0 | 9.891 | | ng/g | | 99 | 40 - 150 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | 9.42 | 9.877 | | ng/g | | 105 | 40 - 150 |
| Perfluoro-3-methoxypropanoic acid | 5.01 | 4.480 | | ng/g | | 89 | 40 - 150 |
| Perfluoro(4-methoxybutanoic acid) | 5.01 | 5.784 | | ng/g | | 115 | 40 - 150 |
| Perfluoro-3,6-dioxaheptanoic acid | 5.01 | 5.435 | | ng/g | | 109 | 40 - 150 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 9.32 | 9.405 | | ng/g | | 101 | 40 - 150 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 9.42 | 9.306 | | ng/g | | 99 | 40 - 150 |
| PFEESA | 4.46 | 4.919 | | ng/g | | 110 | 40 - 150 |
| 3:3 FTCA | 12.5 | 16.35 | | ng/g | | 131 | 40 - 150 |
| 5:3 FTCA | 62.6 | 68.60 | | ng/g | | 110 | 40 - 150 |
| 7:3 FTCA | 62.6 | 67.02 | | ng/g | | 107 | 40 - 150 |

high bias, samples ND - no quals

| *Isotope Dilution* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *13C4 PFBA* | *44.0* | | *20 - 150* |
| *13C5 PFPeA* | *97.9* | | *20 - 150* |
| *13C5 PFHxA* | *92.6* | | *20 - 150* |
| *13C4 PFHpA* | *108* | | *20 - 150* |
| *13C8 PFOA* | *100* | | *20 - 150* |
| *13C9 PFNA* | *89.9* | | *20 - 150* |
| *13C6 PFDA* | *101* | | *20 - 150* |
| *13C7 PFUnA* | *107* | | *20 - 150* |
| *13C2-PFDoDA* | *103* | | *20 - 150* |
| *13C2 PFTeDA* | *90.7* | | *20 - 150* |
| *13C3 PFBS* | *93.1* | | *20 - 150* |
| *13C3 PFHxS* | *103* | | *20 - 150* |
| *13C8 PFOS* | *101* | | *20 - 150* |
| *13C8 FOSA* | *111* | | *20 - 150* |
| *d3-NMeFOSAA* | *95.2* | | *20 - 150* |
| *d5-NEtFOSAA* | *97.0* | | *20 - 150* |
| *M2-4:2 FTS* | *105* | | *20 - 150* |

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: 620-14747-1 MS**
**Matrix: Solid**
**Analysis Batch: 444158**

70-130

**Client Sample ID: 360175-SB-7-0**
**Prep Type: Total/NA**
**Prep Batch: 438117**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| Perfluoropentanoic acid | 0.166 | J | 5.00 | 6.029 | | ng/g | ☼ | 117 | 40 - 150 |
| Perfluorohexanoic acid | 0.0892 | J F2 I | 2.50 | 2.685 | | ng/g | ☼ | 104 | 40 - 150 |
| Perfluoroheptanoic acid | 0.112 | J | 2.50 | 2.893 | | ng/g | ☼ | 111 | 40 - 150 |
| Perfluorooctanoic acid J+, MSH | 0.366 | | 2.50 | 3.732 | | ng/g | ☼ | 135 | 40 - 150 |
| Perfluorononanoic acid | 0.191 | J | 2.50 | 3.339 | | ng/g | ☼ | 126 | 40 - 150 |
| Perfluorodecanoic acid | 0.462 | | 2.50 | 2.986 | | ng/g | ☼ | 101 | 40 - 150 |
| Perfluoroundecanoic acid | 0.555 | | 2.50 | 3.377 | | ng/g | ☼ | 113 | 40 - 150 |
| Perfluorododecanoic acid | 0.465 | | 2.50 | 3.236 | | ng/g | ☼ | 111 | 40 - 150 |
| Perfluorotridecanoic acid | 0.211 | | 2.50 | 2.730 | | ng/g | ☼ | 101 | 40 - 150 |
| Perfluorotetradecanoic acid | 0.211 | | 2.50 | 3.006 | | ng/g | ☼ | 112 | 40 - 150 |
| Perfluorobutanesulfonic acid | 0.0796 | J I | 2.22 | 2.308 | | ng/g | ☼ | 101 | 40 - 150 |
| Perfluoropentanesulfonic acid | ND | U | 2.35 | 2.439 | | ng/g | ☼ | 104 | 40 - 150 |
| Perfluorohexanesulfonic acid | ND | U | 2.29 | 2.636 | | ng/g | ☼ | 115 | 40 - 150 |
| Perfluoroheptanesulfonic acid | ND | U | 2.38 | 2.816 | | ng/g | ☼ | 118 | 40 - 150 |
| Perfluorooctanesulfonic acid | 2.24 | | 2.32 | 4.380 | | ng/g | ☼ | 92 | 40 - 150 |
| Perfluorononanesulfonic acid | ND | U | 2.41 | 2.624 | | ng/g | ☼ | 109 | 40 - 150 |
| Perfluorodecanesulfonic acid | 0.150 | J | 2.41 | 2.538 | | ng/g | ☼ | 99 | 40 - 150 |
| Perfluorododecanesulfonic acid (PFDoS) | ND | U | 2.43 | 2.438 | | ng/g | ☼ | 101 | 40 - 150 |
| 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2) | ND | U | 9.38 | 8.871 | | ng/g | ☼ | 95 | 40 - 150 |
| 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | ND | U | 9.50 | 11.87 | | ng/g | ☼ | 125 | 40 - 150 |
| 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | ND | U | 9.60 | 10.07 | | ng/g | ☼ | 105 | 40 - 150 |
| Perfluorooctanesulfonamide | ND | U | 2.50 | 2.572 | | ng/g | ☼ | 103 | 40 - 150 |
| NMeFOSA | ND | U | 2.50 | 2.603 | | ng/g | ☼ | 104 | 40 - 150 |
| N-ethylperfluoro-1-octanesulfonamide | ND | U | 2.50 | 2.491 | | ng/g | ☼ | 100 | 40 - 150 |
| NMeFOSAA | ND | U | 2.50 | 2.826 | | ng/g | ☼ | 113 | 40 - 150 |
| NEtFOSAA | 0.0585 | J | 2.50 | 2.863 | | ng/g | ☼ | 112 | 40 - 150 |
| 2-(N-methylperfluoro-1-octanesulfonamido) ethanol | ND | U | 25.0 | 26.97 | | ng/g | ☼ | 108 | 40 - 150 |
| 2-(N-ethylperfluoro-1-octanesulfonamido) ethanol | ND | U | 25.0 | 29.86 | | ng/g | ☼ | 119 | 40 - 150 |
| HFPO-DA | ND | U | 9.98 | 9.872 | | ng/g | ☼ | 99 | 40 - 150 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | ND | U | 9.41 | 10.24 | | ng/g | ☼ | 109 | 40 - 150 |
| Perfluoro-3-methoxypropanoic acid | ND | U | 5.00 | 5.440 | | ng/g | ☼ | 109 | 40 - 150 |
| Perfluoro(4-methoxybutanoic acid) | ND | U | 5.00 | 6.033 | | ng/g | ☼ | 121 | 40 - 150 |
| Perfluoro-3,6-dioxaheptanoic acid | ND | U | 5.00 | 4.867 | | ng/g | ☼ | 97 | 40 - 150 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | ND | U | 9.31 | 9.958 | | ng/g | ☼ | 107 | 40 - 150 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | ND | U | 9.41 | 9.818 | | ng/g | ☼ | 104 | 40 - 150 |
| PFEESA | ND | U | 4.45 | 4.671 | | ng/g | ☼ | 105 | 40 - 150 |
| 3:3 FTCA | ND | U | 12.5 | 15.80 | | ng/g | ☼ | 126 | 40 - 150 |

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: 620-14747-1 MS**
**Matrix: Solid**
**Analysis Batch: 444158**

**Client Sample ID: 360175-SB-7-0**
**Prep Type: Total/NA**
**Prep Batch: 438117**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| 5:3 FTCA | ND | U | 62.5 | 62.57 | | ng/g | ☼ | 100 | 40 - 150 |
| 7:3 FTCA | ND | U | 62.5 | 68.77 | | ng/g | ☼ | 110 | 40 - 150 |

| *Isotope Dilution* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *13C4 PFBA* | *90.0* | | *20 - 150* |
| *13C5 PFPeA* | *90.4* | | *20 - 150* |
| *13C5 PFHxA* | *95.9* | | *20 - 150* |
| *13C4 PFHpA* | *95.8* | | *20 - 150* |
| *13C8 PFOA* | *96.1* | | *20 - 150* |
| *13C9 PFNA* | *101* | | *20 - 150* |
| *13C6 PFDA* | *98.7* | | *20 - 150* |
| *13C7 PFUnA* | *88.6* | | *20 - 150* |
| *13C2-PFDoDA* | *99.8* | | *20 - 150* |
| *13C2 PFTeDA* | *88.3* | | *20 - 150* |
| *13C3 PFBS* | *104* | | *20 - 150* |
| *13C3 PFHxS* | *102* | | *20 - 150* |
| *13C8 PFOS* | *94.9* | | *20 - 150* |
| *13C8 FOSA* | *97.4* | | *20 - 150* |
| *d3-NMeFOSAA* | *90.1* | | *20 - 150* |
| *d5-NEtFOSAA* | *91.9* | | *20 - 150* |
| *M2-4:2 FTS* | *125* | | *20 - 150* |
| *M2-6:2 FTS* | *111* | | *20 - 150* |
| *M2-8:2 FTS* | *128* | | *20 - 150* |
| *13C3 HFPO-DA* | *89.6* | | *20 - 150* |
| *d7-N-MeFOSE-M* | *72.9* | | *20 - 150* |
| *d9-N-EtFOSE-M* | *75.3* | | *20 - 150* |
| *d5-NEtPFOSA* | *72.1* | | *20 - 150* |
| *d3-NMePFOSA* | *77.6* | | *20 - 150* |

**Lab Sample ID: 620-14747-1 MSD**
**Matrix: Solid**
**Analysis Batch: 444158**

70-130

**Client Sample ID: 360175-SB-7-0**
**Prep Type: Total/NA**
**Prep Batch: 438117**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid | 0.143 | J | 9.97 | 10.97 | | ng/g | ☼ | 109 | 40 - 150 | 2 | 30 |
| Perfluoropentanoic acid | 0.166 | J | 4.99 | 6.519 | | ng/g | ☼ | 127 | 40 - 150 | 8 | 30 |
| Perfluorohexanoic acid J+, MSH, MSRPD | 0.0892 | J F2 I | 2.49 | 3.783 | F2 | ng/g | ☼ | 148 | 40 - 150 | 34 | 30 |
| Perfluoroheptanoic acid | 0.112 | J | 2.49 | 3.242 | | ng/g | ☼ | 126 | 40 - 150 | 11 | 30 |
| Perfluorooctanoic acid | 0.366 | | 2.49 | 3.616 | | ng/g | ☼ | 130 | 40 - 150 | 3 | 30 |
| Perfluorononanoic acid J+, MSH | 0.191 | J | 2.49 | 3.548 | | ng/g | ☼ | 135 | 40 - 150 | 6 | 30 |
| Perfluorodecanoic acid | 0.462 | | 2.49 | 3.505 | | ng/g | ☼ | 122 | 40 - 150 | 16 | 30 |
| Perfluoroundecanoic acid | 0.555 | | 2.49 | 3.503 | | ng/g | ☼ | 118 | 40 - 150 | 4 | 30 |
| Perfluorododecanoic acid | 0.465 | | 2.49 | 3.345 | | ng/g | ☼ | 115 | 40 - 150 | 3 | 30 |
| Perfluorotridecanoic acid | 0.211 | | 2.49 | 2.979 | | ng/g | ☼ | 111 | 40 - 150 | 9 | 30 |
| Perfluorotetradecanoic acid | 0.211 | | 2.49 | 3.228 | | ng/g | ☼ | 121 | 40 - 150 | 7 | 30 |
| Perfluorobutanesulfonic acid | 0.0796 | J I | 2.21 | 2.351 | | ng/g | ☼ | 103 | 40 - 150 | 2 | 30 |
| Perfluoropentanesulfonic acid | ND | U | 2.35 | 2.512 | | ng/g | ☼ | 107 | 40 - 150 | 3 | 30 |
| Perfluorohexanesulfonic acid | ND | U | 2.28 | 2.615 | | ng/g | ☼ | 115 | 40 - 150 | 1 | 30 |
| Perfluoroheptanesulfonic acid | ND | U | 2.38 | 2.371 | | ng/g | ☼ | 100 | 40 - 150 | 17 | 30 |

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: LCS 410-442336/2-A**
**Matrix: Solid**
**Analysis Batch: 445103**

associated with samples 3, 5-16

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 442336**

high bias - detections J+, LCSH; ND - no quals

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid | 10.0 | 12.01 | | ng/g | | 120 | 40 - 150 |
| Perfluoropentanoic acid | 5.01 | 7.182 | | ng/g | | 143 | 40 - 150 |
| Perfluorohexanoic acid | 2.50 | 3.290 | | ng/g | | 131 | 40 - 150 |
| Perfluoroheptanoic acid | 2.50 | 3.243 | | ng/g | | 130 | 40 - 150 |
| Perfluorooctanoic acid | 2.50 | 3.660 | | ng/g | | 146 | 40 - 150 |
| Perfluorononanoic acid | 2.50 | 3.808 | *+ | ng/g | | 152 | 40 - 150 |
| Perfluorodecanoic acid | 2.50 | 3.062 | | ng/g | | 122 | 40 - 150 |
| Perfluoroundecanoic acid | 2.50 | 3.171 | | ng/g | | 127 | 40 - 150 |
| Perfluorododecanoic acid | 2.50 | 3.412 | | ng/g | | 136 | 40 - 150 |
| Perfluorotridecanoic acid | 2.50 | 3.255 | | ng/g | | 130 | 40 - 150 |
| Perfluorotetradecanoic acid | 2.50 | 3.201 | | ng/g | | 128 | 40 - 150 |
| Perfluorobutanesulfonic acid | 2.22 | 3.034 | | ng/g | | 137 | 40 - 150 |
| Perfluoropentanesulfonic acid | 2.36 | 2.914 | | ng/g | | 124 | 40 - 150 |
| Perfluorohexanesulfonic acid | 2.29 | 2.719 | | ng/g | | 119 | 40 - 150 |
| Perfluoroheptanesulfonic acid | 2.39 | 3.146 | | ng/g | | 132 | 40 - 150 |
| Perfluorooctanesulfonic acid | 2.32 | 2.903 | | ng/g | | 125 | 40 - 150 |
| Perfluorononanesulfonic acid | 2.41 | 2.933 | | ng/g | | 122 | 40 - 150 |
| Perfluorodecanesulfonic acid | 2.42 | 2.790 | | ng/g | | 115 | 40 - 150 |
| Perfluorododecanesulfonic acid (PFDoS) | 2.43 | 2.783 | | ng/g | | 115 | 40 - 150 |
| 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2) | 9.39 | 13.54 | | ng/g | | 144 | 40 - 150 |
| 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | 9.52 | 11.73 | | ng/g | | 123 | 40 - 150 |
| 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | 9.62 | 12.63 | | ng/g | | 131 | 40 - 150 |
| Perfluorooctanesulfonamide | 2.50 | 2.881 | | ng/g | | 115 | 40 - 150 |
| NMeFOSA | 2.50 | 2.719 | | ng/g | | 109 | 40 - 150 |
| N-ethylperfluoro-1-octanesulfonamide | 2.50 | 2.685 | | ng/g | | 107 | 40 - 150 |
| NMeFOSAA | 2.50 | 3.351 | | ng/g | | 134 | 40 - 150 |
| NEtFOSAA | 2.50 | 3.449 | | ng/g | | 138 | 40 - 150 |
| 2-(N-methylperfluoro-1-octanesulfonamido) ethanol | 25.0 | 28.38 | | ng/g | | 113 | 40 - 150 |
| 2-(N-ethylperfluoro-1-octanesulfonamido) ethanol | 25.0 | 31.63 | | ng/g | | 126 | 40 - 150 |
| HFPO-DA | 10.0 | 11.36 | | ng/g | | 114 | 40 - 150 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | 9.42 | 11.78 | | ng/g | | 125 | 40 - 150 |
| Perfluoro-3-methoxypropanoic acid | 5.01 | 6.630 | | ng/g | | 132 | 40 - 150 |
| Perfluoro(4-methoxybutanoic acid) | 5.01 | 6.409 | | ng/g | | 128 | 40 - 150 |
| Perfluoro-3,6-dioxaheptanoic acid | 5.01 | 6.307 | | ng/g | | 126 | 40 - 150 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 9.32 | 11.86 | | ng/g | | 127 | 40 - 150 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 9.42 | 12.06 | | ng/g | | 128 | 40 - 150 |
| PFEESA | 4.46 | 5.146 | | ng/g | | 115 | 40 - 150 |

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: LCS 410-442336/2-A** 70-130
**Client Sample ID: Lab Control Sample**
**Matrix: Solid**
**Prep Type: Total/NA**
**Analysis Batch: 445103** associated with samples 3, 5-16
**Prep Batch: 442336**

high bias - detections J+, LCSH; ND - no quals

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid | 10.0 | 12.01 | | ng/g | | 120 | 40 - 150 |
| Perfluoropentanoic acid | 5.01 | 7.182 | | ng/g | | 143 | 40 - 150 |
| Perfluorohexanoic acid | 2.50 | 3.290 | | ng/g | | 131 | 40 - 150 |
| Perfluoroheptanoic acid | 2.50 | 3.243 | | ng/g | | 130 | 40 - 150 |
| Perfluorooctanoic acid | 2.50 | 3.660 | | ng/g | | 146 | 40 - 150 |
| Perfluorononanoic acid | 2.50 | 3.808 | *+ | ng/g | | 152 | 40 - 150 |
| Perfluorodecanoic acid | 2.50 | 3.062 | | ng/g | | 122 | 40 - 150 |
| Perfluoroundecanoic acid | 2.50 | 3.171 | | ng/g | | 127 | 40 - 150 |
| Perfluorododecanoic acid | 2.50 | 3.412 | | ng/g | | 136 | 40 - 150 |
| Perfluorotridecanoic acid | 2.50 | 3.255 | | ng/g | | 130 | 40 - 150 |
| Perfluorotetradecanoic acid | 2.50 | 3.201 | | ng/g | | 128 | 40 - 150 |
| Perfluorobutanesulfonic acid | 2.22 | 3.034 | | ng/g | | 137 | 40 - 150 |
| Perfluoropentanesulfonic acid | 2.36 | 2.914 | | ng/g | | 124 | 40 - 150 |
| Perfluorohexanesulfonic acid | 2.29 | 2.719 | | ng/g | | 119 | 40 - 150 |
| Perfluoroheptanesulfonic acid | 2.39 | 3.146 | | ng/g | | 132 | 40 - 150 |
| Perfluorooctanesulfonic acid | 2.32 | 2.903 | | ng/g | | 125 | 40 - 150 |
| Perfluorononanesulfonic acid | 2.41 | 2.933 | | ng/g | | 122 | 40 - 150 |
| Perfluorodecanesulfonic acid | 2.42 | 2.790 | | ng/g | | 115 | 40 - 150 |
| Perfluorododecanesulfonic acid (PFDoS) | 2.43 | 2.783 | | ng/g | | 115 | 40 - 150 |
| 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2) | 9.39 | 13.54 | | ng/g | | 144 | 40 - 150 |
| 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | 9.52 | 11.73 | | ng/g | | 123 | 40 - 150 |
| 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | 9.62 | 12.63 | | ng/g | | 131 | 40 - 150 |
| Perfluorooctanesulfonamide | 2.50 | 2.881 | | ng/g | | 115 | 40 - 150 |
| NMeFOSA | 2.50 | 2.719 | | ng/g | | 109 | 40 - 150 |
| N-ethylperfluoro-1-octanesulfonamide | 2.50 | 2.685 | | ng/g | | 107 | 40 - 150 |
| NMeFOSAA | 2.50 | 3.351 | | ng/g | | 134 | 40 - 150 |
| NEtFOSAA | 2.50 | 3.449 | | ng/g | | 138 | 40 - 150 |
| 2-(N-methylperfluoro-1-octanesulfonamido) ethanol | 25.0 | 28.38 | | ng/g | | 113 | 40 - 150 |
| 2-(N-ethylperfluoro-1-octanesulfonamido) ethanol | 25.0 | 31.63 | | ng/g | | 126 | 40 - 150 |
| HFPO-DA | 10.0 | 11.36 | | ng/g | | 114 | 40 - 150 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | 9.42 | 11.78 | | ng/g | | 125 | 40 - 150 |
| Perfluoro-3-methoxypropanoic acid | 5.01 | 6.630 | | ng/g | | 132 | 40 - 150 |
| Perfluoro(4-methoxybutanoic acid) | 5.01 | 6.409 | | ng/g | | 128 | 40 - 150 |
| Perfluoro-3,6-dioxaheptanoic acid | 5.01 | 6.307 | | ng/g | | 126 | 40 - 150 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 9.32 | 11.86 | | ng/g | | 127 | 40 - 150 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 9.42 | 12.06 | | ng/g | | 128 | 40 - 150 |
| PFEESA | 4.46 | 5.146 | | ng/g | | 115 | 40 - 150 |

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: LCS 410-442336/2-A**
**Matrix: Solid**
**Analysis Batch: 445103**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 442336**

associated with samples 3, 5-16

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| 3:3 FTCA | 12.5 | 17.42 | | ng/g | | 139 | 40 - 150 |
| 5:3 FTCA | 62.6 | 68.32 | | ng/g | | 109 | 40 - 150 |
| 7:3 FTCA | 62.6 | 74.97 | | ng/g | | 120 | 40 - 150 |

| *Isotope Dilution* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *13C4 PFBA* | *95.4* | | *20 - 150* |
| *13C5 PFPeA* | *84.3* | | *20 - 150* |
| *13C5 PFHxA* | *87.4* | | *20 - 150* |
| *13C4 PFHpA* | *86.1* | | *20 - 150* |
| *13C8 PFOA* | *107* | | *20 - 150* |
| *13C9 PFNA* | *100* | | *20 - 150* |
| *13C6 PFDA* | *97.6* | | *20 - 150* |
| *13C7 PFUnA* | *91.8* | | *20 - 150* |
| *13C2-PFDoDA* | *81.6* | | *20 - 150* |
| *13C2 PFTeDA* | *83.6* | | *20 - 150* |
| *13C3 PFBS* | *82.8* | | *20 - 150* |
| *13C3 PFHxS* | *97.1* | | *20 - 150* |
| *13C8 PFOS* | *97.1* | | *20 - 150* |
| *13C8 FOSA* | *97.0* | | *20 - 150* |
| *d3-NMeFOSAA* | *89.1* | | *20 - 150* |
| *d5-NEtFOSAA* | *86.3* | | *20 - 150* |
| *M2-4:2 FTS* | *98.6* | | *20 - 150* |
| *M2-6:2 FTS* | *89.4* | | *20 - 150* |
| *M2-8:2 FTS* | *92.5* | | *20 - 150* |
| *13C3 HFPO-DA* | *85.5* | | *20 - 150* |
| *d7-N-MeFOSE-M* | *75.8* | | *20 - 150* |
| *d9-N-EtFOSE-M* | *73.2* | | *20 - 150* |
| *d5-NEtPFOSA* | *58.2* | | *20 - 150* |
| *d3-NMePFOSA* | *66.2* | | *20 - 150* |

**Lab Sample ID: LLCS 410-442336/3-A**
**Matrix: Solid**
**Analysis Batch: 444874**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 442336**

associated with samples 3, 5-16

| Analyte | Spike Added | LLCS Result | LLCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid | 1.60 | 1.738 | | ng/g | | 109 | 40 - 150 |
| Perfluoropentanoic acid | 0.800 | 1.023 | I | ng/g | | 128 | 40 - 150 |
| Perfluorohexanoic acid | 0.400 | 0.5782 | | ng/g | | 145 | 40 - 150 |
| Perfluoroheptanoic acid | 0.400 | 0.4893 | | ng/g | | 122 | 40 - 150 |
| Perfluorooctanoic acid | 0.400 | 0.5485 | | ng/g | | 137 | 40 - 150 |
| Perfluorononanoic acid | 0.400 | 0.5672 | | ng/g | | 142 | 40 - 150 |
| Perfluorodecanoic acid | 0.400 | 0.4848 | | ng/g | | 121 | 40 - 150 |
| Perfluoroundecanoic acid | 0.400 | 0.5254 | | ng/g | | 131 | 40 - 150 |
| Perfluorododecanoic acid | 0.400 | 0.4638 | | ng/g | | 116 | 40 - 150 |
| Perfluorotridecanoic acid | 0.400 | 0.3733 | | ng/g | | 93 | 40 - 150 |
| Perfluorotetradecanoic acid | 0.400 | 0.4081 | | ng/g | | 102 | 40 - 150 |
| Perfluorobutanesulfonic acid | 0.355 | 0.3771 | | ng/g | | 106 | 40 - 150 |
| Perfluoropentanesulfonic acid | 0.376 | 0.4315 | | ng/g | | 115 | 40 - 150 |
| Perfluorohexanesulfonic acid | 0.366 | 0.3825 | | ng/g | | 105 | 40 - 150 |

high bias, detections - J+, LCSH; ND - no quals

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: LLCS 410-442336/3-A**
**Matrix: Solid**
**Analysis Batch: 444874**

associated with samples 3, 5-16

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 442336**

high bias - detections J+, LCSH; ND - no quals

| Analyte | Spike Added | LLCS Result | LLCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Perfluoroheptanesulfonic acid | 0.381 | 0.4453 | | ng/g | | 117 | 40 - 150 |
| Perfluorooctanesulfonic acid | 0.371 | 0.3948 | | ng/g | | 106 | 40 - 150 |
| Perfluorononanesulfonic acid | 0.385 | 0.3840 | | ng/g | | 100 | 40 - 150 |
| Perfluorodecanesulfonic acid | 0.386 | 0.3678 | | ng/g | | 95 | 40 - 150 |
| Perfluorododecanesulfonic acid (PFDoS) | 0.388 | 0.3813 | | ng/g | | 98 | 40 - 150 |
| 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2) | 1.50 | 1.730 | | ng/g | | 115 | 40 - 150 |
| 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | 1.52 | 1.765 | | ng/g | | 116 | 40 - 150 |
| 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | 1.54 | 1.827 | | ng/g | | 119 | 40 - 150 |
| Perfluorooctanesulfonamide | 0.400 | 0.3901 | | ng/g | | 98 | 40 - 150 |
| NMeFOSA | 0.400 | 0.4024 | | ng/g | | 101 | 40 - 150 |
| N-ethylperfluoro-1-octanesulfonamide | 0.400 | 0.4050 | | ng/g | | 101 | 40 - 150 |
| NMeFOSAA | 0.400 | 0.4740 | | ng/g | | 119 | 40 - 150 |
| NEtFOSAA | 0.400 | 0.5002 | | ng/g | | 125 | 40 - 150 |
| 2-(N-methylperfluoro-1-octanesulfonamido) ethanol | 4.00 | 4.164 | | ng/g | | 104 | 40 - 150 |
| 2-(N-ethylperfluoro-1-octanesulfonamido) ethanol | 4.00 | 4.424 | | ng/g | | 111 | 40 - 150 |
| HFPO-DA | 1.60 | 1.819 | | ng/g | | 114 | 40 - 150 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | 1.51 | 1.756 | | ng/g | | 116 | 40 - 150 |
| Perfluoro-3-methoxypropanoic acid | 0.800 | 1.067 | | ng/g | | 133 | 40 - 150 |
| Perfluoro(4-methoxybutanoic acid) | 0.800 | 1.066 | | ng/g | | 133 | 40 - 150 |
| Perfluoro-3,6-dioxaheptanoic acid | 0.800 | 0.9035 | | ng/g | | 113 | 40 - 150 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 1.49 | 1.648 | | ng/g | | 111 | 40 - 150 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 1.51 | 1.466 | | ng/g | | 97 | 40 - 150 |
| PFEESA | 0.712 | 0.9738 | | ng/g | | 137 | 40 - 150 |
| 3:3 FTCA | 2.00 | 2.876 | | ng/g | | 144 | 40 - 150 |
| 5:3 FTCA | 10.0 | 15.02 | | ng/g | | 150 | 40 - 150 |
| 7:3 FTCA | 10.0 | 14.65 | | ng/g | | 146 | 40 - 150 |

| *Isotope Dilution* | *LLCS %Recovery* | *LLCS Qualifier* | *Limits* |
|---|---|---|---|
| *13C4 PFBA* | *97.2* | | *20 - 150* |
| *13C5 PFPeA* | *84.7* | | *20 - 150* |
| *13C5 PFHxA* | *76.7* | | *20 - 150* |
| *13C4 PFHpA* | *101* | | *20 - 150* |
| *13C8 PFOA* | *93.2* | | *20 - 150* |
| *13C9 PFNA* | *90.1* | | *20 - 150* |
| *13C6 PFDA* | *93.8* | | *20 - 150* |
| *13C7 PFUnA* | *80.9* | | *20 - 150* |
| *13C2-PFDoDA* | *94.4* | | *20 - 150* |

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: LLCS 410-442336/3-A**
**Matrix: Solid**
**Analysis Batch: 444874**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 442336**

| Isotope Dilution | LLCS %Recovery | LLCS Qualifier | Limits |
|---|---|---|---|
| 13C2 PFTeDA | 95.1 | | 20 - 150 |
| 13C3 PFBS | 102 | | 20 - 150 |
| 13C3 PFHxS | 104 | | 20 - 150 |
| 13C8 PFOS | 101 | | 20 - 150 |
| 13C8 FOSA | 112 | | 20 - 150 |
| d3-NMeFOSAA | 81.9 | | 20 - 150 |
| d5-NEtFOSAA | 77.7 | | 20 - 150 |
| M2-4:2 FTS | 118 | | 20 - 150 |
| M2-6:2 FTS | 121 | | 20 - 150 |
| M2-8:2 FTS | 93.2 | | 20 - 150 |
| 13C3 HFPO-DA | 96.9 | | 20 - 150 |
| d7-N-MeFOSE-M | 76.2 | | 20 - 150 |
| d9-N-EtFOSE-M | 76.2 | | 20 - 150 |
| d5-NEtPFOSA | 53.1 | | 20 - 150 |
| d3-NMePFOSA | 56.6 | | 20 - 150 |

**Lab Sample ID: 620-14747-3 MS**
**Matrix: Solid**
**Analysis Batch: 444874**

70-130

**Client Sample ID: 360175-SB-5-0**
**Prep Type: Total/NA**
**Prep Batch: 442336**

all other highlights - high bias, samples ND - no quals

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid | ND | U | 9.92 | 12.13 | | ng/g | ☼ | 122 | 40 - 150 |
| Perfluoropentanoic acid J+, MSH | 0.139 | J I F1 | 4.96 | 8.085 | F1 | ng/g | ☼ | 160 | 40 - 150 |
| Perfluorohexanoic acid | ND | U F1 | 2.48 | 3.962 | F1 | ng/g | ☼ | 160 | 40 - 150 |
| Perfluoroheptanoic acid | 0.112 | J | 2.48 | 3.338 | | ng/g | ☼ | 130 | 40 - 150 |
| Perfluorooctanoic acid J+, MSH | 0.202 | | 2.48 | 3.710 | | ng/g | ☼ | 141 | 40 - 150 |
| Perfluorononanoic acid J+, MSH | 0.185 | J F1 *+ | 2.48 | 4.251 | F1 | ng/g | ☼ | 164 | 40 - 150 |
| Perfluorodecanoic acid | 1.38 | | 2.48 | 3.839 | | ng/g | ☼ | 99 | 40 - 150 |
| Perfluoroundecanoic acid | 0.254 | | 2.48 | 3.324 | | ng/g | ☼ | 124 | 40 - 150 |
| Perfluorododecanoic acid | 0.577 | | 2.48 | 3.431 | | ng/g | ☼ | 115 | 40 - 150 |
| Perfluorotridecanoic acid | 0.0682 | J | 2.48 | 2.812 | | ng/g | ☼ | 111 | 40 - 150 |
| Perfluorotetradecanoic acid | 0.171 | J | 2.48 | 2.960 | | ng/g | ☼ | 112 | 40 - 150 |
| Perfluorobutanesulfonic acid | ND | U | 2.20 | 2.911 | | ng/g | ☼ | 132 | 40 - 150 |
| Perfluoropentanesulfonic acid | ND | U | 2.33 | 2.820 | | ng/g | ☼ | 121 | 40 - 150 |
| Perfluorohexanesulfonic acid | 0.0967 | J | 2.27 | 2.686 | | ng/g | ☼ | 114 | 40 - 150 |
| Perfluoroheptanesulfonic acid | ND | U | 2.36 | 3.098 | | ng/g | ☼ | 131 | 40 - 150 |
| Perfluorooctanesulfonic acid | 12.3 | | 2.30 | 17.17 | 4 | ng/g | ☼ | 214 | 40 - 150 |
| Perfluorononanesulfonic acid | ND | U | 2.39 | 2.537 | | ng/g | ☼ | 106 | 40 - 150 |
| Perfluorodecanesulfonic acid | ND | U | 2.39 | 2.538 | | ng/g | ☼ | 106 | 40 - 150 |
| Perfluorododecanesulfonic acid (PFDoS) | ND | U | 2.41 | 2.663 | | ng/g | ☼ | 111 | 40 - 150 |
| 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2) | ND | U | 9.30 | 10.86 | | ng/g | ☼ | 117 | 40 - 150 |
| 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | ND | U | 9.43 | 11.48 | | ng/g | ☼ | 122 | 40 - 150 |
| 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | ND | U | 9.53 | 12.24 | | ng/g | ☼ | 128 | 40 - 150 |
| Perfluorooctanesulfonamide | 0.151 | J | 2.48 | 2.810 | | ng/g | ☼ | 107 | 40 - 150 |
| NMeFOSA | ND | U | 2.48 | 2.565 | | ng/g | ☼ | 103 | 40 - 150 |

sample result >4x spike - no quals

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: 620-14747-3 MS**
**Matrix: Solid**
**Analysis Batch: 444874**

all other highlights - high bias, samples ND - no quals

**Client Sample ID: 360175-SB-5-0**
**Prep Type: Total/NA**
**Prep Batch: 442336**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| N-ethylperfluoro-1-octanesulfonamide | ND | U | 2.48 | 2.537 | | ng/g | ☼ | 102 | 40 - 150 |
| NMeFOSAA J+, MSH | 0.123 | J | 2.48 | 3.452 | | ng/g | ☼ | 134 | 40 - 150 |
| NEtFOSAA | ND | U | 2.48 | 3.423 | | ng/g | ☼ | 138 | 40 - 150 |
| 2-(N-methylperfluoro-1-octanesulfonamido) ethanol | ND | U | 24.8 | 26.81 | | ng/g | ☼ | 108 | 40 - 150 |
| 2-(N-ethylperfluoro-1-octanesulfonamido) ethanol | ND | U | 24.8 | 28.25 | | ng/g | ☼ | 114 | 40 - 150 |
| HFPO-DA | ND | U | 9.91 | 11.35 | | ng/g | ☼ | 114 | 40 - 150 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | ND | U | 9.33 | 11.36 | | ng/g | ☼ | 122 | 40 - 150 |
| Perfluoro-3-methoxypropanoic acid | ND | U | 4.96 | 7.280 | | ng/g | ☼ | 147 | 40 - 150 |
| Perfluoro(4-methoxybutanoic acid) | ND | U F1 | 4.96 | 8.381 | F1 | ng/g | ☼ | 169 | 40 - 150 |
| Perfluoro-3,6-dioxaheptanoic acid | ND | U | 4.96 | 4.978 | | ng/g | ☼ | 100 | 40 - 150 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | ND | U | 9.24 | 10.94 | | ng/g | ☼ | 118 | 40 - 150 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | ND | U | 9.33 | 9.164 | | ng/g | ☼ | 98 | 40 - 150 |
| PFEESA | ND | U | 4.42 | 5.776 | | ng/g | ☼ | 131 | 40 - 150 |
| 3:3 FTCA | ND | U F1 | 12.4 | 20.43 | F1 | ng/g | ☼ | 165 | 40 - 150 |
| 5:3 FTCA | ND | U | 62.0 | 89.14 | | ng/g | ☼ | 144 | 40 - 150 |
| 7:3 FTCA | ND | U | 62.0 | 82.92 | | ng/g | ☼ | 134 | 40 - 150 |

| *Isotope Dilution* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *13C4 PFBA* | *98.9* | | *20 - 150* |
| *13C5 PFPeA* | *78.1* | | *20 - 150* |
| *13C5 PFHxA* | *83.7* | | *20 - 150* |
| *13C4 PFHpA* | *96.9* | | *20 - 150* |
| *13C8 PFOA* | *82.8* | | *20 - 150* |
| *13C9 PFNA* | *102* | | *20 - 150* |
| *13C6 PFDA* | *94.9* | | *20 - 150* |
| *13C7 PFUnA* | *80.1* | | *20 - 150* |
| *13C2-PFDoDA* | *85.1* | | *20 - 150* |
| *13C2 PFTeDA* | *78.3* | | *20 - 150* |
| *13C3 PFBS* | *93.8* | | *20 - 150* |
| *13C3 PFHxS* | *102* | | *20 - 150* |
| *13C8 PFOS* | *102* | | *20 - 150* |
| *13C8 FOSA* | *110* | | *20 - 150* |
| *d3-NMeFOSAA* | *80.6* | | *20 - 150* |
| *d5-NEtFOSAA* | *84.1* | | *20 - 150* |
| *M2-4:2 FTS* | *123* | | *20 - 150* |
| *M2-6:2 FTS* | *120* | | *20 - 150* |
| *M2-8:2 FTS* | *101* | | *20 - 150* |
| *13C3 HFPO-DA* | *90.9* | | *20 - 150* |
| *d7-N-MeFOSE-M* | *69.7* | | *20 - 150* |
| *d9-N-EtFOSE-M* | *64.2* | | *20 - 150* |

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: 620-14747-3 MS**
**Matrix: Solid**
**Analysis Batch: 444874**

**Client Sample ID: 360175-SB-5-0**
**Prep Type: Total/NA**
**Prep Batch: 442336**

| Isotope Dilution | MS %Recovery | MS Qualifier | Limits |
|---|---|---|---|
| d5-NEtPFOSA | 53.5 | | 20 - 150 |
| d3-NMePFOSA | 62.5 | | 20 - 150 |

**Lab Sample ID: 620-14747-3 MSD**
**Matrix: Solid**
**Analysis Batch: 444874**

**Client Sample ID: 360175-SB-5-0**
**Prep Type: Total/NA**
**Prep Batch: 442336**

all other highlights - high bias, samples ND - no quals

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid | ND | U | 9.86 | 11.74 | | ng/g | ☼ | 119 | 40 - 150 | 3 | 30 |
| Perfluoropentanoic acid J+, MSH | 0.139 | J I F1 | 4.93 | 6.843 | | ng/g | ☼ | 136 | 40 - 150 | 17 | 30 |
| Perfluorohexanoic acid | ND | U F1 | 2.46 | 3.646 | | ng/g | ☼ | 148 | 40 - 150 | 8 | 30 |
| Perfluoroheptanoic acid | 0.112 | J | 2.46 | 3.174 | | ng/g | ☼ | 124 | 40 - 150 | 5 | 30 |
| Perfluorooctanoic acid J+, MSH | 0.202 | | 2.46 | 3.819 | | ng/g | ☼ | 147 | 40 - 150 | 3 | 30 |
| Perfluorononanoic acid J+, MSH | 0.185 | J F1 *+ | 2.46 | 4.176 | F1 | ng/g | ☼ | 162 | 40 - 150 | 2 | 30 |
| Perfluorodecanoic acid | 1.38 | | 2.46 | 3.785 | | ng/g | ☼ | 98 | 40 - 150 | 1 | 30 |
| Perfluoroundecanoic acid | 0.254 | | 2.46 | 3.448 | | ng/g | ☼ | 130 | 40 - 150 | 4 | 30 |
| Perfluorododecanoic acid | 0.577 | | 2.46 | 3.552 | | ng/g | ☼ | 121 | 40 - 150 | 3 | 30 |
| Perfluorotridecanoic acid | 0.0682 | J | 2.46 | 2.880 | | ng/g | ☼ | 114 | 40 - 150 | 2 | 30 |
| Perfluorotetradecanoic acid | 0.171 | J | 2.46 | 3.073 | | ng/g | ☼ | 118 | 40 - 150 | 4 | 30 |
| Perfluorobutanesulfonic acid | ND | U | 2.19 | 3.012 | | ng/g | ☼ | 138 | 40 - 150 | 3 | 30 |
| Perfluoropentanesulfonic acid | ND | U | 2.32 | 2.736 | | ng/g | ☼ | 118 | 40 - 150 | 3 | 30 |
| Perfluorohexanesulfonic acid | 0.0967 | J | 2.25 | 2.632 | | ng/g | ☼ | 113 | 40 - 150 | 2 | 30 |
| Perfluoroheptanesulfonic acid | ND | U | 2.35 | 3.011 | | ng/g | ☼ | 128 | 40 - 150 | 3 | 30 |
| Perfluorooctanesulfonic acid sample result >4x spike - no quals | 12.3 | | 2.29 | 15.74 | 4 | ng/g | ☼ | 152 | 40 - 150 | 9 | 30 |
| Perfluorononanesulfonic acid | ND | U | 2.37 | 2.659 | | ng/g | ☼ | 112 | 40 - 150 | 5 | 30 |
| Perfluorodecanesulfonic acid | ND | U | 2.38 | 2.715 | | ng/g | ☼ | 114 | 40 - 150 | 7 | 30 |
| Perfluorododecanesulfonic acid (PFDoS) | ND | U | 2.39 | 2.586 | | ng/g | ☼ | 108 | 40 - 150 | 3 | 30 |
| 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2) | ND | U | 9.24 | 12.18 | | ng/g | ☼ | 132 | 40 - 150 | 12 | 30 |
| 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | ND | U | 9.36 | 10.90 | | ng/g | ☼ | 116 | 40 - 150 | 5 | 30 |
| 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | ND | U | 9.46 | 10.38 | | ng/g | ☼ | 110 | 40 - 150 | 16 | 30 |
| Perfluorooctanesulfonamide | 0.151 | J | 2.46 | 2.835 | | ng/g | ☼ | 109 | 40 - 150 | 1 | 30 |
| NMeFOSA | ND | U | 2.46 | 2.743 | | ng/g | ☼ | 111 | 40 - 150 | 7 | 30 |
| N-ethylperfluoro-1-octanesulfonamide | ND | U | 2.46 | 2.497 | | ng/g | ☼ | 101 | 40 - 150 | 2 | 30 |
| NMeFOSAA | 0.123 | J | 2.46 | 3.054 | | ng/g | ☼ | 119 | 40 - 150 | 12 | 30 |
| NEtFOSAA | ND | U | 2.46 | 3.370 | | ng/g | ☼ | 137 | 40 - 150 | 2 | 30 |
| 2-(N-methylperfluoro-1-octanesulfonamido) ethanol | ND | U | 24.6 | 25.28 | | ng/g | ☼ | 103 | 40 - 150 | 6 | 30 |
| 2-(N-ethylperfluoro-1-octanesulfonamido) ethanol | ND | U | 24.6 | 28.00 | | ng/g | ☼ | 114 | 40 - 150 | 1 | 30 |
| HFPO-DA | ND | U | 9.84 | 11.48 | | ng/g | ☼ | 117 | 40 - 150 | 1 | 30 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | ND | U | 9.27 | 11.17 | | ng/g | ☼ | 121 | 40 - 150 | 2 | 30 |
| Perfluoro-3-methoxypropanoic acid | ND | U | 4.93 | 6.405 | | ng/g | ☼ | 130 | 40 - 150 | 13 | 30 |

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: 620-14747-3 MSD**
**Matrix: Solid**
**Analysis Batch: 444874**

all other highlights - high bias, samples ND - no quals

**Client Sample ID: 360175-SB-5-0**
**Prep Type: Total/NA**
**Prep Batch: 442336**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perfluoro(4-methoxybutanoic acid) | ND | U F1 | 4.93 | 7.164 | | ng/g | ☼ | 145 | 40 - 150 | 16 | 30 |
| Perfluoro-3,6-dioxaheptanoic acid | ND | U | 4.93 | 4.756 | | ng/g | ☼ | 97 | 40 - 150 | 5 | 30 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | ND | U | 9.17 | 10.98 | | ng/g | ☼ | 120 | 40 - 150 | 0 | 30 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | ND | U | 9.27 | 9.523 | | ng/g | ☼ | 103 | 40 - 150 | 4 | 30 |
| PFEESA | ND | U | 4.39 | 5.041 | | ng/g | ☼ | 115 | 40 - 150 | 14 | 30 |
| 3:3 FTCA | ND | U F1 | 12.3 | 17.06 | | ng/g | ☼ | 139 | 40 - 150 | 18 | 30 |
| 5:3 FTCA | ND | U | 61.6 | 82.83 | | ng/g | ☼ | 135 | 40 - 150 | 7 | 30 |
| 7:3 FTCA | ND | U | 61.6 | 80.21 | | ng/g | ☼ | 130 | 40 - 150 | 3 | 30 |

| *Isotope Dilution* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *13C4 PFBA* | *102* | | *20 - 150* |
| *13C5 PFPeA* | *87.9* | | *20 - 150* |
| *13C5 PFHxA* | *86.2* | | *20 - 150* |
| *13C4 PFHpA* | *94.2* | | *20 - 150* |
| *13C8 PFOA* | *92.2* | | *20 - 150* |
| *13C9 PFNA* | *104* | | *20 - 150* |
| *13C6 PFDA* | *93.4* | | *20 - 150* |
| *13C7 PFUnA* | *82.4* | | *20 - 150* |
| *13C2-PFDoDA* | *86.8* | | *20 - 150* |
| *13C2 PFTeDA* | *79.2* | | *20 - 150* |
| *13C3 PFBS* | *95.3* | | *20 - 150* |
| *13C3 PFHxS* | *105* | | *20 - 150* |
| *13C8 PFOS* | *99.7* | | *20 - 150* |
| *13C8 FOSA* | *110* | | *20 - 150* |
| *d3-NMeFOSAA* | *85.5* | | *20 - 150* |
| *d5-NEtFOSAA* | *82.9* | | *20 - 150* |
| *M2-4:2 FTS* | *110* | | *20 - 150* |
| *M2-6:2 FTS* | *137* | | *20 - 150* |
| *M2-8:2 FTS* | *119* | | *20 - 150* |
| *13C3 HFPO-DA* | *89.3* | | *20 - 150* |
| *d7-N-MeFOSE-M* | *66.7* | | *20 - 150* |
| *d9-N-EtFOSE-M* | *56.6* | | *20 - 150* |
| *d5-NEtPFOSA* | *52.2* | | *20 - 150* |
| *d3-NMePFOSA* | *58.6* | | *20 - 150* |

**Lab Sample ID: 620-14747-10 DU**
**Matrix: Solid**
**Analysis Batch: 444874**

**Client Sample ID: 360175-SB-3A-0**
**Prep Type: Total/NA**
**Prep Batch: 442336**

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid | ND | U | ND | U | ng/g | ☼ | NC | 30 |
| Perfluoropentanoic acid | ND | U | ND | U | ng/g | ☼ | NC | 30 |
| Perfluorohexanoic acid | ND | U | ND | U | ng/g | ☼ | NC | 30 |
| Perfluoroheptanoic acid | 0.0530 | J | ND | U | ng/g | ☼ | NC | 30 |
| Perfluorooctanoic acid | 0.157 | J | 0.2864 | F5 | ng/g | ☼ | 58 | 30 |
| Perfluorononanoic acid | 0.557 | I *+ | 0.5056 | I *+ | ng/g | ☼ | 10 | 30 |

result <RL - no quals

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: MB 410-442547/1-A**
**Matrix: Water**
**Analysis Batch: 445884**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 442547**

| Isotope Dilution | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| M2-8:2 FTS | 91.7 | | 50 - 200 | 11/13/23 07:16 | 11/21/23 11:15 | 1 |
| 13C3 HFPO-DA | 80.7 | | 25 - 160 | 11/13/23 07:16 | 11/21/23 11:15 | 1 |
| d7-N-MeFOSE-M | 68.7 | | 10 - 150 | 11/13/23 07:16 | 11/21/23 11:15 | 1 |
| d9-N-EtFOSE-M | 69.6 | | 10 - 150 | 11/13/23 07:16 | 11/21/23 11:15 | 1 |
| d5-NEtPFOSA | 57.6 | | 10 - 130 | 11/13/23 07:16 | 11/21/23 11:15 | 1 |
| d3-NMePFOSA | 60.6 | | 15 - 130 | 11/13/23 07:16 | 11/21/23 11:15 | 1 |

**Lab Sample ID: LCS 410-442547/2-A**
**Matrix: Water**
**Analysis Batch: 445884**

associated with source blank only - no quals

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 442547**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid | 100 | 109.3 | | ng/L | | 109 | 58 - 148 |
| Perfluoropentanoic acid | 50.1 | 63.66 | | ng/L | | 127 | 54 - 152 |
| Perfluorohexanoic acid | 25.0 | 33.45 | | ng/L | | 134 | 55 - 152 |
| Perfluoroheptanoic acid | 25.0 | 31.56 | | ng/L | | 126 | 54 - 154 |
| Perfluorooctanoic acid | 25.0 | 36.08 | | ng/L | | 144 | 52 - 161 |
| Perfluorononanoic acid | 25.0 | 34.98 | | ng/L | | 140 | 59 - 149 |
| Perfluorodecanoic acid | 25.0 | 32.99 | | ng/L | | 132 | 52 - 147 |
| Perfluoroundecanoic acid | 25.0 | 31.83 | | ng/L | | 127 | 48 - 159 |
| Perfluorododecanoic acid | 25.0 | 30.47 | | ng/L | | 122 | 64 - 142 |
| Perfluorotridecanoic acid | 25.0 | 30.18 | | ng/L | | 121 | 49 - 148 |
| Perfluorotetradecanoic acid | 25.0 | 26.89 | | ng/L | | 107 | 47 - 161 |
| Perfluorobutanesulfonic acid | 22.2 | 26.76 | | ng/L | | 120 | 62 - 144 |
| Perfluoropentanesulfonic acid | 23.6 | 28.87 | | ng/L | | 123 | 59 - 151 |
| Perfluorohexanesulfonic acid | 22.9 | 25.52 | | ng/L | | 111 | 57 - 146 |
| Perfluoroheptanesulfonic acid | 23.9 | 32.07 | | ng/L | | 134 | 55 - 152 |
| Perfluorooctanesulfonic acid | 23.2 | 27.96 | | ng/L | | 120 | 58 - 149 |
| Perfluorononanesulfonic acid | 24.1 | 26.45 | | ng/L | | 110 | 52 - 148 |
| Perfluorodecanesulfonic acid | 24.2 | 27.78 | | ng/L | | 115 | 51 - 147 |
| Perfluorododecanesulfonic acid (PFDoS) | 24.3 | 29.56 | | ng/L | | 122 | 36 - 145 |
| 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2) | 93.9 | 94.18 | | ng/L | | 100 | 67 - 146 |
| 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | 95.2 | 117.9 | | ng/L | | 124 | 61 - 151 |
| 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | 96.2 | 101.3 | | ng/L | | 105 | 63 - 152 |
| Perfluorooctanesulfonamide | 25.0 | 25.26 | | ng/L | | 101 | 61 - 148 |
| NMeFOSA | 25.0 | 27.03 | | ng/L | | 108 | 63 - 145 |
| N-ethylperfluoro-1-octanesulfonamide | 25.0 | 28.00 | | ng/L | | 112 | 65 - 139 |
| NMeFOSAA | 25.0 | 28.58 | | ng/L | | 114 | 58 - 144 |
| NEtFOSAA | 25.0 | 30.69 | | ng/L | | 123 | 59 - 146 |
| 2-(N-methylperfluoro-1-octanesulfonamido) ethanol | 250 | 276.4 | | ng/L | | 110 | 71 - 136 |
| 2-(N-ethylperfluoro-1-octanesulfonamido) ethanol | 250 | 316.2 | | ng/L | | 126 | 69 - 137 |
| HFPO-DA | 100 | 101.5 | | ng/L | | 102 | 63 - 144 |

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: LCS 410-442547/2-A**
**Matrix: Water**
**Analysis Batch: 445884**

associated with source blank only - no quals

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 442547**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | 94.2 | 102.8 | | ng/L | | 109 | 68 - 146 |
| Perfluoro-3-methoxypropanoic acid | 50.1 | 59.85 | | ng/L | | 120 | 51 - 145 |
| Perfluoro(4-methoxybutanoic acid) | 50.1 | 61.10 | | ng/L | | 122 | 55 - 148 |
| Perfluoro-3,6-dioxaheptanoic acid | 50.1 | 66.27 | | ng/L | | 132 | 48 - 161 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 93.2 | 95.76 | | ng/L | | 103 | 56 - 156 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 94.2 | 97.86 | | ng/L | | 104 | 46 - 156 |
| PFEESA | 44.6 | 56.67 | | ng/L | | 127 | 56 - 151 |
| 3:3 FTCA | 125 | 161.1 | | ng/L | | 129 | 62 - 129 |
| 5:3 FTCA | 626 | 743.4 | | ng/L | | 119 | 63 - 134 |
| 7:3 FTCA | 626 | 746.3 | | ng/L | | 119 | 50 - 138 |

| *Isotope Dilution* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *13C4 PFBA* | *90.3* | | *10 - 130* |
| *13C5 PFPeA* | *76.4* | | *40 - 150* |
| *13C5 PFHxA* | *75.8* | | *40 - 150* |
| *13C4 PFHpA* | *82.3* | | *40 - 150* |
| *13C8 PFOA* | *76.5* | | *30 - 140* |
| *13C9 PFNA* | *80.8* | | *30 - 140* |
| *13C6 PFDA* | *75.7* | | *20 - 140* |
| *13C7 PFUnA* | *72.7* | | *20 - 140* |
| *13C2-PFDoDA* | *76.0* | | *10 - 150* |
| *13C2 PFTeDA* | *79.6* | | *10 - 130* |
| *13C3 PFBS* | *88.2* | | *25 - 150* |
| *13C3 PFHxS* | *82.5* | | *25 - 150* |
| *13C8 PFOS* | *78.0* | | *20 - 140* |
| *13C8 FOSA* | *84.5* | | *10 - 130* |
| *d3-NMeFOSAA* | *73.5* | | *10 - 200* |
| *d5-NEtFOSAA* | *75.7* | | *10 - 200* |
| *M2-4:2 FTS* | *103* | | *25 - 200* |
| *M2-6:2 FTS* | *91.8* | | *25 - 200* |
| *M2-8:2 FTS* | *91.6* | | *25 - 200* |
| *13C3 HFPO-DA* | *85.5* | | *25 - 160* |
| *d7-N-MeFOSE-M* | *69.0* | | *10 - 150* |
| *d9-N-EtFOSE-M* | *71.7* | | *10 - 150* |
| *d5-NEtPFOSA* | *61.3* | | *10 - 130* |
| *d3-NMePFOSA* | *66.3* | | *10 - 130* |

**Lab Sample ID: LLCS 410-442547/3-A**
**Matrix: Water**
**Analysis Batch: 445884**

associated with source blank only - no quals

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 442547**

| Analyte | Spike Added | LLCS Result | LLCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid | 16.0 | 17.98 | | ng/L | | 112 | 44 - 157 |
| Perfluoropentanoic acid | 8.00 | 11.00 | | ng/L | | 138 | 57 - 148 |

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: LLCS 410-442547/3-A**
**Matrix: Water**
**Analysis Batch: 445884**

associated with source blank only - no quals

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 442547**

| Analyte | Spike Added | LLCS Result | LLCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Perfluorohexanoic acid | 4.00 | 4.740 | | ng/L | | 119 | 62 - 149 |
| Perfluoroheptanoic acid | 4.00 | 4.818 | | ng/L | | 120 | 56 - 150 |
| Perfluorooctanoic acid | 4.00 | 6.757 | *+ | ng/L | | 169 | 57 - 161 |
| Perfluorononanoic acid | 4.00 | 5.116 | | ng/L | | 128 | 53 - 157 |
| Perfluorodecanoic acid | 4.00 | 5.344 | | ng/L | | 134 | 43 - 158 |
| Perfluoroundecanoic acid | 4.00 | 4.796 | | ng/L | | 120 | 50 - 155 |
| Perfluorododecanoic acid | 4.00 | 4.594 | | ng/L | | 115 | 60 - 141 |
| Perfluorotridecanoic acid | 4.00 | 4.923 | | ng/L | | 123 | 52 - 140 |
| Perfluorotetradecanoic acid | 4.00 | 4.716 | | ng/L | | 118 | 52 - 156 |
| Perfluorobutanesulfonic acid | 3.55 | 4.624 | | ng/L | | 130 | 63 - 145 |
| Perfluoropentanesulfonic acid | 3.76 | 4.471 | | ng/L | | 119 | 58 - 144 |
| Perfluorohexanesulfonic acid | 3.66 | 4.587 | | ng/L | | 125 | 44 - 158 |
| Perfluoroheptanesulfonic acid | 3.81 | 4.156 | | ng/L | | 109 | 51 - 150 |
| Perfluorooctanesulfonic acid | 3.71 | 4.362 | | ng/L | | 118 | 43 - 162 |
| Perfluorononanesulfonic acid | 3.85 | 4.094 | | ng/L | | 106 | 46 - 151 |
| Perfluorodecanesulfonic acid | 3.86 | 4.293 | | ng/L | | 111 | 50 - 144 |
| Perfluorododecanesulfonic acid (PFDoS) | 3.88 | 4.122 | | ng/L | | 106 | 30 - 138 |
| 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2) | 15.0 | 17.10 | | ng/L | | 114 | 52 - 158 |
| 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | 15.2 | 18.44 | | ng/L | | 121 | 48 - 158 |
| 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | 15.4 | 17.49 | | ng/L | | 114 | 46 - 165 |
| Perfluorooctanesulfonamide | 4.00 | 4.008 | | ng/L | | 100 | 47 - 163 |
| NMeFOSA | 4.00 | 4.265 | | ng/L | | 107 | 54 - 155 |
| N-ethylperfluoro-1-octanesulfonamide | 4.00 | 4.300 | | ng/L | | 108 | 49 - 156 |
| NMeFOSAA | 4.00 | 5.155 | | ng/L | | 129 | 32 - 160 |
| NEtFOSAA | 4.00 | 4.359 | | ng/L | | 109 | 51 - 154 |
| 2-(N-methylperfluoro-1-octanesulfonamido) ethanol | 40.0 | 43.78 | | ng/L | | 109 | 56 - 151 |
| 2-(N-ethylperfluoro-1-octanesulfonamido) ethanol | 40.0 | 48.55 | | ng/L | | 121 | 60 - 147 |
| HFPO-DA | 16.0 | 17.37 | | ng/L | | 109 | 58 - 154 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | 15.1 | 16.96 | | ng/L | | 113 | 61 - 148 |
| Perfluoro-3-methoxypropanoic acid | 8.00 | 9.579 | | ng/L | | 120 | 48 - 150 |
| Perfluoro(4-methoxybutanoic acid) | 8.00 | 10.01 | | ng/L | | 125 | 49 - 154 |
| Perfluoro-3,6-dioxaheptanoic acid | 8.00 | 9.175 | | ng/L | | 115 | 47 - 160 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 14.9 | 15.65 | | ng/L | | 105 | 44 - 167 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 15.1 | 16.39 | | ng/L | | 109 | 36 - 158 |
| PFEESA | 7.12 | 7.672 | | ng/L | | 108 | 56 - 144 |
| 3:3 FTCA | 20.0 | 26.50 | | ng/L | | 132 | 32 - 161 |
| 5:3 FTCA | 100 | 101.2 | | ng/L | | 101 | 39 - 156 |

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: MB 410-442667/1-A**
**Matrix: Solid**
**Analysis Batch: 445103**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 442667**

| Isotope Dilution | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| d3-NMeFOSAA | 99.4 | | 20 - 150 | 11/13/23 09:43 | 11/18/23 13:43 | 1 |
| d5-NEtFOSAA | 97.0 | | 20 - 150 | 11/13/23 09:43 | 11/18/23 13:43 | 1 |
| M2-4:2 FTS | 133 | | 20 - 150 | 11/13/23 09:43 | 11/18/23 13:43 | 1 |
| M2-6:2 FTS | 137 | | 20 - 150 | 11/13/23 09:43 | 11/18/23 13:43 | 1 |
| M2-8:2 FTS | 119 | | 20 - 150 | 11/13/23 09:43 | 11/18/23 13:43 | 1 |
| 13C3 HFPO-DA | 110 | | 20 - 150 | 11/13/23 09:43 | 11/18/23 13:43 | 1 |
| d7-N-MeFOSE-M | 92.9 | | 20 - 150 | 11/13/23 09:43 | 11/18/23 13:43 | 1 |
| d9-N-EtFOSE-M | 88.6 | | 20 - 150 | 11/13/23 09:43 | 11/18/23 13:43 | 1 |
| d5-NEtPFOSA | 74.4 | | 20 - 150 | 11/13/23 09:43 | 11/18/23 13:43 | 1 |
| d3-NMePFOSA | 80.7 | | 20 - 150 | 11/13/23 09:43 | 11/18/23 13:43 | 1 |

**Lab Sample ID: LCS 410-442667/2-A**
**Matrix: Solid**
**Analysis Batch: 445103**

associated with samples 17-32

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 442667**

detections - J+, LCSH; ND - no quals

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid | 10.0 | 11.51 | | ng/g | | 115 | 40 - 150 |
| Perfluoropentanoic acid | 5.01 | 6.280 | | ng/g | | 125 | 40 - 150 |
| Perfluorohexanoic acid | 2.50 | 2.996 | | ng/g | | 120 | 40 - 150 |
| Perfluoroheptanoic acid | 2.50 | 3.355 | | ng/g | | 134 | 40 - 150 |
| Perfluorooctanoic acid | 2.50 | 3.069 | | ng/g | | 123 | 40 - 150 |
| Perfluorononanoic acid | 2.50 | 3.917 | *+ | ng/g | | 156 | 40 - 150 |
| Perfluorodecanoic acid | 2.50 | 2.821 | | ng/g | | 113 | 40 - 150 |
| Perfluoroundecanoic acid | 2.50 | 2.855 | | ng/g | | 114 | 40 - 150 |
| Perfluorododecanoic acid | 2.50 | 3.071 | | ng/g | | 123 | 40 - 150 |
| Perfluorotridecanoic acid | 2.50 | 2.799 | | ng/g | | 112 | 40 - 150 |
| Perfluorotetradecanoic acid | 2.50 | 2.761 | | ng/g | | 110 | 40 - 150 |
| Perfluorobutanesulfonic acid | 2.22 | 2.912 | | ng/g | | 131 | 40 - 150 |
| Perfluoropentanesulfonic acid | 2.36 | 2.753 | | ng/g | | 117 | 40 - 150 |
| Perfluorohexanesulfonic acid | 2.29 | 2.456 | | ng/g | | 107 | 40 - 150 |
| Perfluoroheptanesulfonic acid | 2.39 | 2.715 | | ng/g | | 114 | 40 - 150 |
| Perfluorooctanesulfonic acid | 2.32 | 2.568 | | ng/g | | 111 | 40 - 150 |
| Perfluorononanesulfonic acid | 2.41 | 2.463 | | ng/g | | 102 | 40 - 150 |
| Perfluorodecanesulfonic acid | 2.42 | 2.614 | | ng/g | | 108 | 40 - 150 |
| Perfluorododecanesulfonic acid (PFDoS) | 2.43 | 2.467 | | ng/g | | 102 | 40 - 150 |
| 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2) | 9.39 | 11.33 | | ng/g | | 121 | 40 - 150 |
| 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | 9.52 | 11.59 | | ng/g | | 122 | 40 - 150 |
| 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | 9.62 | 11.45 | | ng/g | | 119 | 40 - 150 |
| Perfluorooctanesulfonamide | 2.50 | 2.577 | | ng/g | | 103 | 40 - 150 |
| NMeFOSA | 2.50 | 2.573 | | ng/g | | 103 | 40 - 150 |
| N-ethylperfluoro-1-octanesulfonamide | 2.50 | 2.592 | | ng/g | | 104 | 40 - 150 |
| NMeFOSAA | 2.50 | 3.281 | | ng/g | | 131 | 40 - 150 |
| NEtFOSAA | 2.50 | 3.093 | | ng/g | | 124 | 40 - 150 |
| 2-(N-methylperfluoro-1-octanesulfonamido) ethanol | 25.0 | 27.22 | | ng/g | | 109 | 40 - 150 |

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: LCS 410-442667/2-A**
**Matrix: Solid**
**Analysis Batch: 445103**

associated with samples 17-32

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 442667**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-(N-ethylperfluoro-1-octanesulfonamido) ethanol | | | 25.0 | 29.85 | | ng/g | | 119 | 40 - 150 | | |
| HFPO-DA | | | 10.0 | 10.13 | | ng/g | | 101 | 40 - 150 | | |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | | | 9.42 | 10.60 | | ng/g | | 113 | 40 - 150 | | |
| Perfluoro-3-methoxypropanoic acid | | | 5.01 | 6.391 | | ng/g | | 128 | 40 - 150 | | |
| Perfluoro(4-methoxybutanoic acid) | | | 5.01 | 5.905 | | ng/g | | 118 | 40 - 150 | | |
| Perfluoro-3,6-dioxaheptanoic acid | | | 5.01 | 5.794 | | ng/g | | 116 | 40 - 150 | | |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | | | 9.32 | 11.28 | | ng/g | | 121 | 40 - 150 | | |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | | | 9.42 | 10.82 | | ng/g | | 115 | 40 - 150 | | |
| PFEESA | detections - J+, LCSH; ND - no quals | | 4.46 | 4.771 | | ng/g | | 107 | 40 - 150 | | |
| 3:3 FTCA | | | 12.5 | 17.41 | | ng/g | | 139 | 40 - 150 | | |
| 5:3 FTCA | | | 62.6 | 64.25 | | ng/g | | 103 | 40 - 150 | | |
| 7:3 FTCA | | | 62.6 | 70.03 | | ng/g | | 112 | 40 - 150 | | |

| *Isotope Dilution* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *13C4 PFBA* | *97.3* | | *20 - 150* |
| *13C5 PFPeA* | *98.1* | | *20 - 150* |
| *13C5 PFHxA* | *106* | | *20 - 150* |
| *13C4 PFHpA* | *104* | | *20 - 150* |
| *13C8 PFOA* | *112* | | *20 - 150* |
| *13C9 PFNA* | *93.3* | | *20 - 150* |
| *13C6 PFDA* | *107* | | *20 - 150* |
| *13C7 PFUnA* | *104* | | *20 - 150* |
| *13C2-PFDoDA* | *96.9* | | *20 - 150* |
| *13C2 PFTeDA* | *95.2* | | *20 - 150* |
| *13C3 PFBS* | *91.5* | | *20 - 150* |
| *13C3 PFHxS* | *110* | | *20 - 150* |
| *13C8 PFOS* | *111* | | *20 - 150* |
| *13C8 FOSA* | *116* | | *20 - 150* |
| *d3-NMeFOSAA* | *92.7* | | *20 - 150* |
| *d5-NEtFOSAA* | *100* | | *20 - 150* |
| *M2-4:2 FTS* | *111* | | *20 - 150* |
| *M2-6:2 FTS* | *109* | | *20 - 150* |
| *M2-8:2 FTS* | *103* | | *20 - 150* |
| *13C3 HFPO-DA* | *98.2* | | *20 - 150* |
| *d7-N-MeFOSE-M* | *95.9* | | *20 - 150* |
| *d9-N-EtFOSE-M* | *92.2* | | *20 - 150* |
| *d5-NEtPFOSA* | *75.1* | | *20 - 150* |
| *d3-NMePFOSA* | *83.0* | | *20 - 150* |

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: LLCS 410-442667/3-A**
**Matrix: Solid**
**Analysis Batch: 445103**

associated with samples 17-32

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 442667**

detections - J+, LCSH; ND - no quals

| Analyte | Spike Added | LLCS Result | LLCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid | 1.60 | 1.667 | | ng/g | | 104 | 40 - 150 |
| Perfluoropentanoic acid | 0.800 | 1.051 | | ng/g | | 131 | 40 - 150 |
| Perfluorohexanoic acid | 0.400 | 0.5086 | | ng/g | | 127 | 40 - 150 |
| Perfluoroheptanoic acid | 0.400 | 0.4603 | | ng/g | | 115 | 40 - 150 |
| Perfluorooctanoic acid | 0.400 | 0.5484 | | ng/g | | 137 | 40 - 150 |
| Perfluorononanoic acid | 0.400 | 0.6261 | *+ | ng/g | | 157 | 40 - 150 |
| Perfluorodecanoic acid | 0.400 | 0.4662 | | ng/g | | 117 | 40 - 150 |
| Perfluoroundecanoic acid | 0.400 | 0.4394 | | ng/g | | 110 | 40 - 150 |
| Perfluorododecanoic acid | 0.400 | 0.5063 | | ng/g | | 127 | 40 - 150 |
| Perfluorotridecanoic acid | 0.400 | 0.4461 | | ng/g | | 112 | 40 - 150 |
| Perfluorotetradecanoic acid | 0.400 | 0.4830 | | ng/g | | 121 | 40 - 150 |
| Perfluorobutanesulfonic acid | 0.355 | 0.4109 | | ng/g | | 116 | 40 - 150 |
| Perfluoropentanesulfonic acid | 0.376 | 0.4120 | | ng/g | | 109 | 40 - 150 |
| Perfluorohexanesulfonic acid | 0.366 | 0.4116 | | ng/g | | 113 | 40 - 150 |
| Perfluoroheptanesulfonic acid | 0.381 | 0.4221 | | ng/g | | 111 | 40 - 150 |
| Perfluorooctanesulfonic acid | 0.371 | 0.4120 | | ng/g | | 111 | 40 - 150 |
| Perfluorononanesulfonic acid | 0.385 | 0.3920 | | ng/g | | 102 | 40 - 150 |
| Perfluorodecanesulfonic acid | 0.386 | 0.3703 | | ng/g | | 96 | 40 - 150 |
| Perfluorododecanesulfonic acid (PFDoS) | 0.388 | 0.3636 | | ng/g | | 94 | 40 - 150 |
| 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2) | 1.50 | 1.686 | | ng/g | | 112 | 40 - 150 |
| 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | 1.52 | 1.523 | | ng/g | | 100 | 40 - 150 |
| 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | 1.54 | 1.599 | | ng/g | | 104 | 40 - 150 |
| Perfluorooctanesulfonamide | 0.400 | 0.3923 | | ng/g | | 98 | 40 - 150 |
| NMeFOSA | 0.400 | 0.4405 | | ng/g | | 110 | 40 - 150 |
| N-ethylperfluoro-1-octanesulfonamide | 0.400 | 0.4130 | | ng/g | | 103 | 40 - 150 |
| NMeFOSAA | 0.400 | 0.5020 | | ng/g | | 126 | 40 - 150 |
| NEtFOSAA | 0.400 | 0.5162 | | ng/g | | 129 | 40 - 150 |
| 2-(N-methylperfluoro-1-octanesulfonamido) ethanol | 4.00 | 4.323 | | ng/g | | 108 | 40 - 150 |
| 2-(N-ethylperfluoro-1-octanesulfonamido) ethanol | 4.00 | 4.781 | | ng/g | | 120 | 40 - 150 |
| HFPO-DA | 1.60 | 1.571 | | ng/g | | 98 | 40 - 150 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | 1.51 | 1.685 | | ng/g | | 112 | 40 - 150 |
| Perfluoro-3-methoxypropanoic acid | 0.800 | 1.015 | | ng/g | | 127 | 40 - 150 |
| Perfluoro(4-methoxybutanoic acid) | 0.800 | 1.001 | | ng/g | | 125 | 40 - 150 |
| Perfluoro-3,6-dioxaheptanoic acid | 0.800 | 0.9323 | | ng/g | | 117 | 40 - 150 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 1.49 | 1.683 | | ng/g | | 113 | 40 - 150 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 1.51 | 1.636 | | ng/g | | 109 | 40 - 150 |
| PFEESA | 0.712 | 0.7671 | | ng/g | | 108 | 40 - 150 |

Client: WSP USA Environment & Infrastructure Inc. Job ID: 620-14747-1
Project/Site: Irvington R&C

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Matrix: Solid** **Prep Type: Total/NA**

| | | Percent Isotope Dilution Recovery (Acceptance Limits) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lab Sample ID | Client Sample ID | PFDoDA (20-150) | PFTDA (20-150) | C3PFBS (20-150) | C3PFHS (20-150) | C8PFOS (20-150) | PFOSA (20-150) | d3NMFOS (20-150) | d5NEFOS (20-150) |
| LLCS 410-442667/3-A | Lab Control Sample | 94.5 | 95.2 | 103 | 111 | 109 | 109 | 97.0 | 91.0 |
| MB 410-438117/1-A | Method Blank | 90.7 | 81.2 | 104 | 102 | 96.8 | 104 | 101 | 90.6 |
| MB 410-442336/1-A | Method Blank | 91.2 | 87.3 | 99.7 | 107 | 99.8 | 118 | 81.9 | 91.9 |
| MB 410-442667/1-A | Method Blank | 99.9 | 103 | 101 | 105 | 106 | 113 | 99.4 | 97.0 |

50-150

| | | Percent Isotope Dilution Recovery (Acceptance Limits) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lab Sample ID | Client Sample ID | M242FTS (20-150) | M262FTS (20-150) | M282FTS (20-150) | HFPODA (20-150) | NMFM (20-150) | NEFM (20-150) | d5NPFSA (20-150) | d3NMFSA (20-150) |
| 620-14747-1 | 360175-SB-7-0 | 107 | 117 | 124 | 90.1 | 73.2 | 75.9 | 73.4 | 77.4 |
| 620-14747-1 MS | 360175-SB-7-0 | 125 | 111 | 128 | 89.6 | 72.9 | 75.3 | 72.1 | 77.6 |
| 620-14747-1 MSD | 360175-SB-7-0 | 144 | 124 | 139 | 85.5 | 70.8 | 72.1 | 72.2 | 76.5 |
| 620-14747-2 | 360175-SB-7-1 | 127 | 143 | 122 | 112 | 79.7 | 81.2 | 76.3 | 85.3 |
| 620-14747-3 | 360175-SB-5-0 | 125 | 122 | 104 | 87.9 | 71.2 | 65.5 | 54.2 | 61.4 |
| 620-14747-3 MS | 360175-SB-5-0 | 123 | 120 | 101 | 90.9 | 69.7 | 64.2 | 53.5 | 62.5 |
| 620-14747-3 MSD | 360175-SB-5-0 | 110 | 137 | 119 | 89.3 | 66.7 | 56.6 | 52.2 | 58.6 |
| 620-14747-4 | 360175-SB-5-0 D | 112 | 137 | 95.9 | 109 | 78.9 | 68.0 | 80.0 | 91.8 |
| 620-14747-5 | 360175-SB-5-2 | 121 | 140 | 104 | 90.4 | 74.7 | 66.0 | 55.4 | 66.5 |
| 620-14747-6 | 360175-SB-5-5 | 117 | 122 | 111 | 87.2 | 73.3 | 69.2 | 52.8 | 61.6 |
| 620-14747-7 | 360175-SB-2A-0 | 103 | 139 | 103 | 94.7 | 76.2 | 76.7 | 68.0 | 67.4 |
| 620-14747-8 | 360175-SB-2A-2 | 125 | 116 | 112 | 86.3 | 62.7 | 55.7 | 56.3 | 58.1 |
| 620-14747-9 | 360175-SB-2A-5 | 125 | 119 | 94.4 | 93.4 | 77.3 | 75.8 | 57.9 | 64.6 |
| 620-14747-10 | 360175-SB-3A-0 | 123 | 123 | 103 | 86.6 | 76.9 | 75.6 | 62.2 | 67.6 |
| 620-14747-10 DU | 360175-SB-3A-0 | 118 | 112 | 99.8 | 93.2 | 69.5 | 67.4 | 56.9 | 62.6 |
| 620-14747-11 | 360175-SB-3A-0 D | 116 | 125 | 112 | 92.1 | 63.5 | 57.3 | 52.2 | 57.5 |
| 620-14747-12 | 360175-SB-3A-2 | 107 | 120 | 106 | 88.4 | 67.8 | 60.4 | 53.2 | 59.5 |
| 620-14747-13 | 360175-SB-3A-5 | 121 | 127 | 108 | 89.7 | 75.3 | 67.6 | 55.3 | 65.2 |
| 620-14747-14 | 360175-SB-1A-0 | 123 | 145 | 141 | 89.2 | 81.1 | 81.0 | 70.4 | 73.1 |
| 620-14747-15 | 360175-SB-1A-2 | 135 | 127 | 113 | 92.1 | 71.0 | 62.7 | 58.3 | 63.8 |
| 620-14747-16 | 360175-SB-1A-5 UJ, EIS | 113 | 126 | 103 | 85.7 | 63.8 | 51.9 | 49.0 | 58.2 |
| 620-14747-17 | 360175-SB-8-0 | 139 | 127 | 128 | 104 | 87.0 | 82.1 | 76.2 | 82.0 |
| 620-14747-18 | 360175-SB-8-0.2 | 129 | 130 | 123 | 95.9 | 86.0 | 77.1 | 74.7 | 82.1 |
| 620-14747-19 | 360175-SB-8-1 | 116 | 112 | 103 | 95.2 | 83.0 | 74.5 | 64.9 | 77.9 |
| 620-14747-20 | 360175-SB-8-2 | 115 | 101 | 109 | 110 | 86.6 | 75.1 | 69.8 | 82.9 |
| 620-14747-21 | 360175-SB-8-5 | 120 | 129 | 104 | 104 | 93.7 | 89.0 | 77.8 | 84.5 |
| 620-14747-22 | 360175-SB-6-0 | 145 | 136 | 136 | 92.8 | 95.3 | 85.6 | 88.5 | 91.5 |
| 620-14747-23 | 360175-SB-6-0.2 | 139 | | 122 | 90.0 | 84.6 | 73.1 | 74.7 | 76.4 |
| 620-14747-23 - DL | 360175-SB-6-0.2 | | 101 | | | | | | |
| 620-14747-24 | 360175-SB-6-1 | 134 | 140 | 112 | 97.0 | 87.6 | 78.9 | 73.4 | 80.5 |
| 620-14747-25 | 360175-SB-6-2 | 125 | 119 | 104 | 111 | 70.2 | 54.2 | 68.1 | 78.6 |
| 620-14747-26 | 360175-SB-6-5 | 119 | 128 | 101 | 111 | 81.9 | 82.9 | 74.1 | 85.4 |
| 620-14747-27 | 360175-SB-4-0 | 144 | | 149 | 111 | 88.7 | 84.2 | 80.7 | 85.4 |
| 620-14747-27 - DL | 360175-SB-4-0 | | 99.4 | | | | | | |
| 620-14747-28 | 360175-SB-4-2 | 124 | 109 | 109 | 100 | 76.7 | 64.2 | 71.1 | 79.7 |
| 620-14747-29 | 360175-SB-4-5 | 131 | 99.5 | 107 | 104 | 82.2 | 74.6 | 65.5 | 73.4 |
| 620-14747-30 | 360175-SB-9-0 | | | | 82.2 | 87.8 | 85.4 | 81.1 | 87.7 |
| 620-14747-30 - DL | 360175-SB-9-0 | 138 | 143 | 102 | | | | | |
| 620-14747-31 | 360175-SB-9-2 | 120 | 114 | 95.2 | 101 | 70.2 | 56.3 | 64.7 | 77.3 |
| 620-14747-32 | 360175-SB-10-1 | 132 | 114 | 110 | 108 | 75.1 | 59.3 | 70.4 | 81.0 |
| 620-14747-32 DU | 360175-SB-10-1 | 133 | 134 | 124 | 105 | 75.7 | 64.0 | 64.7 | 75.5 |
| LCS 410-438117/2-A | Lab Control Sample | 105 | 111 | 98.8 | 94.3 | 77.3 | 75.6 | 72.4 | 79.7 |
| LCS 410-442336/2-A | Lab Control Sample | 98.6 | 89.4 | 92.5 | 85.5 | 75.8 | 73.2 | 58.2 | 66.2 |

# Isotope Dilution Summary

Client: WSP USA Environment & Infrastructure Inc. Job ID: 620-14747-1
Project/Site: Irvington R&C

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Matrix: Solid** **Prep Type: Total/NA**

| | | Percent Isotope Dilution Recovery (Acceptance Limits) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | PFDoDA | PFTDA | C3PFBS | C3PFHS | C8PFOS | PFOSA | d3NMFOS | d5NEFOS |
| Lab Sample ID | Client Sample ID | (20-150) | (20-150) | (20-150) | (20-150) | (20-150) | (20-150) | (20-150) | (20-150) |
| LLCS 410-442667/3-A | Lab Control Sample | 94.5 | 95.2 | 103 | 111 | 109 | 109 | 97.0 | 91.0 |
| MB 410-438117/1-A | Method Blank | 90.7 | 81.2 | 104 | 102 | 96.8 | 104 | 101 | 90.6 |
| MB 410-442336/1-A | Method Blank | 91.2 | 87.3 | 99.7 | 107 | 99.8 | 118 | 81.9 | 91.9 |
| MB 410-442667/1-A | Method Blank | 99.9 | 103 | 101 | 105 | 106 | 113 | 99.4 | 97.0 |

| | | Percent Isotope Dilution Recovery (Acceptance Limits) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | M242FTS | M262FTS | M282FTS | HFPODA | NMFM | NEFM | d5NPFSA | d3NMFSA |
| Lab Sample ID | Client Sample ID | (20-150) | (20-150) | (20-150) | (20-150) | (20-150) | (20-150) | (20-150) | (20-150) |
| 620-14747-1 | 360175-SB-7-0 | 107 | 117 | 124 | 90.1 | 73.2 | 75.9 | 73.4 | 77.4 |
| 620-14747-1 MS | 360175-SB-7-0 | 125 | 111 | 128 | 89.6 | 72.9 | 75.3 | 72.1 | 77.6 |
| 620-14747-1 MSD | 360175-SB-7-0 | 144 | 124 | 139 | 85.5 | 70.8 | 72.1 | 72.2 | 76.5 |
| 620-14747-2 | 360175-SB-7-1 | 127 | 143 | 122 | 112 | 79.7 | 81.2 | 76.3 | 85.3 |
| 620-14747-3 | 360175-SB-5-0 | 125 | 122 | 104 | 87.9 | 71.2 | 65.5 | 54.2 | 61.4 |
| 620-14747-3 MS | 360175-SB-5-0 | 123 | 120 | 101 | 90.9 | 69.7 | 64.2 | 53.5 | 62.5 |
| 620-14747-3 MSD | 360175-SB-5-0 | 110 | 137 | 119 | 89.3 | 66.7 | 56.6 | 52.2 | 58.6 |
| 620-14747-4 | 360175-SB-5-0 D | 112 | 137 | 95.9 | 109 | 78.9 | 68.0 | 80.0 | 91.8 |
| 620-14747-5 | 360175-SB-5-2 | 121 | 140 | 104 | 90.4 | 74.7 | 66.0 | 55.4 | 66.5 |
| 620-14747-6 | 360175-SB-5-5 | 117 | 122 | 111 | 87.2 | 73.3 | 69.2 | 52.8 | 61.6 |
| 620-14747-7 | 360175-SB-2A-0 | 103 | 139 | 103 | 94.7 | 76.2 | 76.7 | 68.0 | 67.4 |
| 620-14747-8 | 360175-SB-2A-2 | 125 | 116 | 112 | 86.3 | 62.7 | 55.7 | 56.3 | 58.1 |
| 620-14747-9 | 360175-SB-2A-5 | 125 | 119 | 94.4 | 93.4 | 77.3 | 75.8 | 57.9 | 64.6 |
| 620-14747-10 | 360175-SB-3A-0 | 123 | 123 | 103 | 86.6 | 76.9 | 75.6 | 62.2 | 67.6 |
| 620-14747-10 DU | 360175-SB-3A-0 | 118 | 112 | 99.8 | 93.2 | 69.5 | 67.4 | 56.9 | 62.6 |
| 620-14747-11 | 360175-SB-3A-0 D | 116 | 125 | 112 | 92.1 | 63.5 | 57.3 | 52.2 | 57.5 |
| 620-14747-12 | 360175-SB-3A-2 | 107 | 120 | 106 | 88.4 | 67.8 | 60.4 | 53.2 | 59.5 |
| 620-14747-13 | 360175-SB-3A-5 | 121 | 127 | 108 | 89.7 | 75.3 | 67.6 | 55.3 | 65.2 |
| 620-14747-14 | 360175-SB-1A-0 | 123 | 145 | 141 | 89.2 | 81.1 | 81.0 | 70.4 | 73.1 |
| 620-14747-15 | 360175-SB-1A-2 | 135 | 127 | 113 | 92.1 | 71.0 | 62.7 | 58.3 | 63.8 |
| 620-14747-16 | 360175-SB-1A-5 | 113 | 126 | 103 | 85.7 | 63.8 | 51.9 | 49.0 | 58.2 |
| 620-14747-17 | 360175-SB-8-0 | 139 | 127 | 128 | 104 | 87.0 | 82.1 | 76.2 | 82.0 |
| 620-14747-18 | 360175-SB-8-0.2 | 129 | 130 | 123 | 95.9 | 86.0 | 77.1 | 74.7 | 82.1 |
| 620-14747-19 | 360175-SB-8-1 | 116 | 112 | 103 | 95.2 | 83.0 | 74.5 | 64.9 | 77.9 |
| 620-14747-20 | 360175-SB-8-2 | 115 | 101 | 109 | 110 | 86.6 | 75.1 | 69.8 | 82.9 |
| 620-14747-21 | 360175-SB-8-5 | 120 | 129 | 104 | 104 | 93.7 | 89.0 | 77.8 | 84.5 |
| 620-14747-22 | 360175-SB-6-0 | 145 | 136 | 136 | 92.8 | 95.3 | 85.6 | 88.5 | 91.5 |
| 620-14747-23 | 360175-SB-6-0.2 reported from 10x dil - no quals | 139 | 152 *5+ | 122 | 90.0 | 84.6 | 73.1 | 74.7 | 76.4 |
| 620-14747-23 - DL | 360175-SB-6-0.2 | 99.3 | 101 | 103 | 90.9 | 71.3 | 63.7 | 71.8 | 74.6 |
| 620-14747-24 | 360175-SB-6-1 | 134 | 140 | 112 | 97.0 | 87.6 | 78.9 | 73.4 | 80.5 |
| 620-14747-25 | 360175-SB-6-2 | 125 | 119 | 104 | 111 | 70.2 | 54.2 | 68.1 | 78.6 |
| 620-14747-26 | 360175-SB-6-5 | 119 | 128 | 101 | 111 | 81.9 | 82.9 | 74.1 | 85.4 |
| 620-14747-27 | 360175-SB-4-0 reported from 10x dil - no quals | 144 | 156 *5+ | 149 | 111 | 88.7 | 84.2 | 80.7 | 85.4 |
| 620-14747-27 - DL | 360175-SB-4-0 | 136 | 99.4 | 91.9 | 106 | 87.5 | 84.9 | 82.1 | 84.9 |
| 620-14747-28 | 360175-SB-4-2 | 124 | 109 | 109 | 100 | 76.7 | 64.2 | 71.1 | 79.7 |
| 620-14747-29 | 360175-SB-4-5 reported from 10x dil - no quals | 131 | 99.5 | 107 | 104 | 82.2 | 74.6 | 65.5 | 73.4 |
| 620-14747-30 | 360175-SB-9-0 | 176 *5+ | 156 *5+ | 158 *5+ | 82.2 | 87.8 | 85.4 | 81.1 | 87.7 |
| 620-14747-30 - DL | 360175-SB-9-0 | 138 | 143 | 102 | 84.2 | 76.0 | 73.9 | 75.1 | 80.9 |
| 620-14747-31 | 360175-SB-9-2 | 120 | 114 | 95.2 | 101 | 70.2 | 56.3 | 64.7 | 77.3 |
| 620-14747-32 | 360175-SB-10-1 | 132 | 114 | 110 | 108 | 75.1 | 59.3 | 70.4 | 81.0 |
| 620-14747-32 DU | 360175-SB-10-1 | 133 | 134 | 124 | 105 | 75.7 | 64.0 | 64.7 | 75.5 |
| LCS 410-438117/2-A | Lab Control Sample | 105 | 111 | 98.8 | 94.3 | 77.3 | 75.6 | 72.4 | 79.7 |
| LCS 410-442336/2-A | Lab Control Sample | 98.6 | 89.4 | 92.5 | 85.5 | 75.8 | 73.2 | 58.2 | 66.2 |

Sample ID: 360175-SB-3A-0/360175-SB-3A-0 D

| Compund | Result | LabQual | Dup | LabQual | RPD | |
|---|---|---|---|---|---|---|
| Perfluorodecanoic acid (PFDA) | 0.904 | | 0.866 | | 4.293785 | |
| Perfluorooctanesulfonamide (PFOSA) | 0.238 | | 0.221 | | 7.407407 | |
| Perfluorooctanesulfonic acid (PFOS) | 0.869 | | 0.854 | | 1.741149 | |
| Perfluorododecanoic acid (PFDoA) | 2.26 | | 2.08 | | 8.294931 | |
| Perfluorooctanoic acid (PFOA) | 0.157 | | 0.221 | | 33.86243 | J, FD |
| Perfluorotetradecanoic acid (PFTeDA) | 0.665 | | 0.616 | | 7.650273 | |
| Perfluorotridecanoic acid (PFTrDA) | 0.238 | | 0.194 | | 20.37037 | |
| Perfluoroundecanoic acid (PFUnA) | 0.837 | | 0.794 | | 5.272839 | |

Sample ID: 360175-SB-5-0/360175-SB-5-0 D

| Compund | Result | LabQual | Dup | LabQual | RPD |
|---|---|---|---|---|---|
| Perfluorodecanoic acid (PFDA) | 1.38 | | 1.66 | | 18.42105 |
| Perfluorododecanoic acid (PFDoA) | 0.577 | | 0.450 | | 24.73223 |
| Perfluorooctanesulfonic acid (PFOS) | 13.4 | | 12.3 | | 8.560311 |
| Perfluorooctanoic acid (PFOA) | 0.202 | | 0.243 | | 18.42697 |
| Perfluoroundecanoic acid (PFUnA) | 0.254 | | 0.261 | | 2.718447 |

FORM VI
PFAS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins Lancaster Laboratories Environment Testing, LLC  Job No.: 620-14747-1  Analy Batch No.: 441614

SDG No.:

Instrument ID: 30729  GC Column: Gemini C18  ID: 3(mm)  Heated Purge: (Y/N) N

Calibration Start Date: 11/09/2023 17:08  Calibration End Date: 11/09/2023 18:26  Calibration ID: 55572

| ANALYTE | RRF | | | | | CURVE TYPE | COEFFICIENT | | | # | MIN RRF | %RSD /RSE | # | MAX %RSD /RSE | R^2 OR COD | # | MIN R^2 OR COD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LVL 1 LVL 6 | LVL 2 LVL 7 | LVL 3 | LVL 4 | LVL 5 | | B | M1 | M2 | | | | | | | | |
| PFEESA | 21.427 25.898 | 23.867 25.616 | 23.472 | 26.016 | 25.292 | AveID | | 24.513 | | | | 6.9 | | 20.0 | | | |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | 1.9860 2.2904 | 2.2007 2.3544 | 2.0551 | 2.0682 | 2.0906 | AveID | | 2.1493 | | | | 6.3 | | 20.0 | | | |
| 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | 3.3858 3.2251 | 4.2957 3.4477 | 4.1812 | 4.0750 | 4.1987 | AveID | | 3.8299 | | | | 11.9 | | 20.0 | | | |
| Perfluoropentanesulfonic acid | 0.8044 0.9592 | 0.8005 0.9686 | 0.8574 | 0.8140 | 0.7443 | AveID | | 0.8498 | | | | 10.0 | | 20.0 | | | |
| Perfluorooctanoic acid | 0.4650 0.5139 | 0.5555 0.5240 | 0.4884 | 0.4896 | 0.4559 | AveID | | 0.4989 | | | | 7.0 | | 20.0 | | | |
| Perfluorohexanesulfonic acid | 0.7067 0.8301 | 0.6981 0.7982 | 0.7925 | 0.7191 | 0.6851 | AveID | | 0.7471 | | | | 7.8 | | 20.0 | | | |
| 7:3 FTCA | 0.9405 0.9951 | 1.1135 0.9451 | 1.0766 | 1.0573 | 1.1210 | AveID | | 1.0356 | | | | 7.3 | | 20.0 | | | |
| Perfluorononanoic acid | 0.5732 0.6843 | 0.7102 0.7118 | 0.6657 | 0.5430 | 0.6116 | AveID | | 0.6429 | | | | 10.5 | | 20.0 | | | |
| 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | 4.7011 5.8250 | 5.0615 +++++ | 5.7562 | 5.1435 | 5.3223 | AveID | | 5.3016 | | | | 8.1 | | 20.0 | | | |
| Perfluoroheptanesulfonic acid | 0.7713 0.8196 | 0.7570 0.8290 | 0.7989 | 0.7137 | 0.7791 | AveID | | 0.7812 | | | | 5.0 | | 20.0 | | | |
| NMeFOSAA | 0.8936 0.8107 | 0.7135 0.8154 | 0.8677 | 0.7795 | 0.7683 | AveID | | 0.8070 | | | | 7.5 | | 20.0 | | | |
| Perfluorodecanoic acid | 0.7585 0.7319 | 0.5795 0.7940 | 0.6619 | 0.6420 | 0.6970 | AveID | | 0.6950 | | | | 10.6 | | 20.0 | | | |
| NEtFOSAA | 0.7246 0.6266 | 0.7015 0.6638 | 0.6683 | 0.6431 | 0.6761 | AveID | | 0.6720 | | | | 4.9 | | 20.0 | | | |
| Perfluorooctanesulfonic acid | 0.7815 0.9195 | 0.9484 0.9598 | 0.8420 | 0.8061 | 0.8444 | AveID | | 0.8717 | | | | 8.1 | | 20.0 | | | |
| Perfluoroundecanoic acid | 0.6713 0.7561 | 0.6628 0.8055 | 0.6958 | 0.7174 | 0.7698 | AveID | | 0.7255 | | | | 7.4 | | 20.0 | | | |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 1.9958 2.3380 | 2.1743 2.2713 | 2.2498 | 2.1381 | 2.0531 | AveID | | 2.1743 | | | | 5.6 | | 20.0 | | | |
| Perfluorononanesulfonic acid | 0.7137 0.8339 | 0.8414 0.8398 | 0.8297 | 0.7260 | 0.7558 | AveID | | 0.7915 | | | | 7.2 | | 20.0 | | | |

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type. RSD is calculated for Ave curve types. RSE is used for all other types.

FORM I
PFAS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories Environment Testing, LLC  Job No.: 620-14747-1

SDG No.:

Client Sample ID: 360175-SB-5-0  Lab Sample ID: 620-14747-3

Matrix: Solid  Lab File ID: 23NOV17-46.d

Analysis Method: 1633  Date Collected: 10/18/2023 09:18

Extraction Method: 1633 Shake  Date Extracted: 11/11/2023 09:46

Sample wt/vol: 5.67(g)  Date Analyzed: 11/17/2023 23:20

Con. Extract Vol.: 5(mL)  Dilution Factor: 1

Injection Volume: 2(uL)  GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 10.7  % Solids: 89.3  GPC Cleanup:(Y/N) N

Cleanup Factor:

Analysis Batch No.: 444874  Units: ng/g

| CAS NO. | COMPOUND NAME | RESULT | Q | RL | MDL |
|---|---|---|---|---|---|
| 375-22-4 | Perfluorobutanoic acid | ND | U | 0.790 | 0.0987 |
| 2706-90-3 | Perfluoropentanoic acid | 0.139 | J I F1 | 0.395 | 0.0987 |
| 307-24-4 | Perfluorohexanoic acid | ND | U F1 | 0.197 | 0.0583 |
| 375-85-9 | Perfluoroheptanoic acid | 0.112 | J | 0.197 | 0.0494 |
| 335-67-1 | Perfluorooctanoic acid | 0.202 | | 0.197 | 0.0504 |
| 375-95-1 | Perfluorononanoic acid | 0.185 | J F1 *+ | 0.197 | 0.0494 |
| 335-76-2 | Perfluorodecanoic acid | 1.38 | | 0.197 | 0.0494 |
| 2058-94-8 | Perfluoroundecanoic acid | 0.254 | | 0.197 | 0.0494 |
| 307-55-1 | Perfluorododecanoic acid | 0.577 | | 0.197 | 0.0494 |
| 72629-94-8 | Perfluorotridecanoic acid | 0.0682 | J | 0.197 | 0.0494 |
| 376-06-7 | Perfluorotetradecanoic acid | 0.171 | J | 0.197 | 0.0494 |
| 375-73-5 | Perfluorobutanesulfonic acid | ND | U | 0.197 | 0.0494 |
| 2706-91-4 | Perfluoropentanesulfonic acid | ND | U | 0.197 | 0.0494 |
| 355-46-4 | Perfluorohexanesulfonic acid | 0.0967 | J | 0.197 | 0.0494 |
| 375-92-8 | Perfluoroheptanesulfonic acid | ND | U | 0.197 | 0.0494 |
| 1763-23-1 | Perfluorooctanesulfonic acid | 12.3 | | 0.197 | 0.0504 |
| 68259-12-1 | Perfluorononanesulfonic acid | ND | U | 0.197 | 0.0494 |
| 335-77-3 | Perfluorodecanesulfonic acid | ND | U | 0.197 | 0.0494 |
| 79780-39-5 | Perfluorododecanesulfonic acid (PFDoS) | ND | U | 0.197 | 0.0494 |
| 757124-72-4 | 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2) | ND | U | 0.790 | 0.197 |
| 27619-97-2 | 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | ND | U | 0.987 | 0.346 |
| 39108-34-4 | 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | ND | U | 0.987 | 0.346 |
| 754-91-6 | Perfluorooctanesulfonamide | 0.151 | J | 0.197 | 0.0494 |
| 31506-32-8 | NMeFOSA | ND | U | 0.197 | 0.0494 |
| 4151-50-2 | N-ethylperfluoro-1-octanesulfonamide | ND | U | 0.197 | 0.0494 |
| 2355-31-9 | NMeFOSAA | 0.123 | J | 0.197 | 0.0494 |
| 2991-50-6 | NEtFOSAA | ND | U | 0.197 | 0.0494 |

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|---|---|---|---|---|---|---|---|---|---|---|
| 17 PFBS | | | | | | | | | | |
| 298.70 > 79.90 | 4.023 | 3.986 | 0.037 | 0.997 | 18306 | 0.0498 | Target=3.18 | | 537 | |
| 298.70 > 98.80 | 4.023 | 3.986 | 0.037 | 0.997 | 6004 | | 3.05(1.59-4.77) | | 295 | |
| 21 TCDCA | | | | | | | | | | |
| 498.10 > 80.00 | 4.023 | 4.049 | -0.026 | 0.762 | 2153 | 0.004496 | | | 97.1 | |
| D 25 13C4 PFHpA | | | | | | | | | | |
| 367.10 > 322.00 | 4.178 | 4.127 | 0.051 | 1.067 | 1238830 | 2.17 | | 86.9 | 85080 | |
| 24 PFHpA | | | | | | | | | | |
| 363.10 > 319.00 | 4.178 | 4.129 | 0.049 | 1.000 | 43528 | 0.1133 | Target=3.13 | | 597 | |
| 363.10 > 169.00 | 4.167 | 4.129 | 0.038 | 0.997 | 13491 | | 3.23(1.56-4.69) | | 761 | |
| 23 PFEESA | | | | | | | | | | R |
| 314.80 > 134.90 | 4.178 | 4.129 | 0.049 | 1.067 | 2984 | 0.003114 | Target=13.09 | | 56.7 | R |
| 314.80 > 82.90 | 4.296 | 4.129 | 0.167 | 1.097 | 1824 | | 1.64(6.54-19.63) | | 21.4 | |
| D 29 13C2-6:2FTS | | | | | | | | | | |
| 429.10 > 80.90 | 4.285 | 4.238 | 0.047 | 0.937 | 152531 | 5.80 | | 122 | 8004 | |
| * 30 13C4 PFOA | | | | | | | | | | |
| 417.10 > 172.00 | 4.423 | 4.371 | 0.052 | | 82787 | 2.50 | | | 6090 | |
| D 31 13C8 PFOA | | | | | | | | | | |
| 421.10 > 376.00 | 4.423 | 4.371 | 0.052 | 1.000 | 1615029 | 2.13 | | 85.2 | 118772 | |
| 32 PFOA | | | | | | | | | | M |
| 413.00 > 369.00 | 4.423 | 4.373 | 0.050 | 1.000 | 65874 | 0.2044 | Target=2.07 | | 23.8 | M |
| 413.00 > 169.00 | 4.423 | 4.373 | 0.050 | 1.000 | 28200 | | 2.34(1.03-3.10) | | 36.8 | M |
| * 35 18O2 PFHxS | | | | | | | | | | |
| 403.00 > 83.90 | 4.574 | 4.519 | 0.055 | | 1046587 | 2.37 | | | 76230 | |
| D 36 13C3 PFHxS | | | | | | | | | | |
| 402.10 > 79.90 | 4.585 | 4.529 | 0.056 | 1.002 | 1149557 | 2.46 | | 104 | 83068 | |
| 34 PFHxS | | | | | | | | | | |
| 398.70 > 79.90 | 4.585 | 4.540 | 0.045 | 1.000 | 35576 | 0.0980 | Target=3.35 | | 75.8 | |
| 398.70 > 98.90 | 4.585 | 4.540 | 0.045 | 1.000 | 9824 | | 3.62(1.68-5.03) | | 35.3 | |
| * 37 13C5 PFNA | | | | | | | | | | |
| 468.00 > 423.00 | 4.665 | 4.608 | 0.057 | | 529168 | 1.25 | | | 36965 | |
| D 38 13C9 PFNA | | | | | | | | | | |
| 472.10 > 427.00 | 4.676 | 4.618 | 0.058 | 1.002 | 527324 | 1.27 | | 102 | 37871 | |
| 39 PFNA | | | | | | | | | | |
| 463.00 > 419.00 | 4.676 | 4.628 | 0.048 | 1.000 | 50813 | 0.1874 | Target=3.99 | | 36.4 | |
| 463.00 > 219.00 | 4.676 | 4.628 | 0.048 | 1.000 | 10382 | | 4.89(1.99-5.98) | | 39.1 | |
| D 41 13C2-8:2FTS | | | | | | | | | | |
| 529.10 > 80.90 | 4.801 | 4.728 | 0.073 | 1.050 | 71978 | 4.97 | | 104 | 5040 | |
| 42 PFHpS | | | | | | | | | | |
| 449.00 > 79.90 | 4.886 | 4.824 | 0.062 | 0.925 | 11179 | 0.0299 | Target=3.62 | | 481 | |
| 449.00 > 98.80 | 4.877 | 4.824 | 0.053 | 0.924 | 4314 | | 2.59(1.81-5.43) | | 262 | |
| D 44 d3-NMeFOSAA | | | | | | | | | | |
| 573.20 > 419.00 | 4.935 | 4.862 | 0.073 | 0.933 | 893015 | 4.04 | | 80.8 | 63793 | |
| 43 NMeFOSAA | | | | | | | | | | |
| 570.10 > 419.00 | 4.944 | 4.872 | 0.072 | 1.002 | 17894 | 0.1242 | Target=1.71 | | 83.5 | |
| 570.10 > 483.00 | 4.935 | 4.872 | 0.063 | 1.000 | 9498 | | 1.88(0.85-2.56) | | 2811 | |
| D 47 13C6 PFDA | | | | | | | | | | |
| 519.10 > 474.10 | 4.999 | 4.918 | 0.081 | 1.000 | 647439 | 1.22 | | 97.5 | 47071 | |

DUSR Calculations Sheet
PFAS

**Sample ID:** 360175-SB-5-0
**TC:** PFOA
**Val File Result for TC:** 0.202

## Sample Calc

| | | | |
|---|---|---|---|
| **Area TC** | 65874 | **DF** | 1 |
| **Area IS** | 1615029 | **Sample Wt (g)** | 5.67 |
| | | **final vol (ml)** | 5 |
| **Conc IS** | 2.5 | **inj vol (ul)** | 2 |
| **Avg RRF** | 0.4989 | **TS** | 0.893 |
| **Conc (ng/mL) TC =** | 0.20439 | **Conc (ng/g)** | 0.20183464 |

Notes:
Green = matched reported value
Red = did not match reported value

# DATA USABILITY SUMMARY REPORT
# MARCH 2024 SAMPLING EVENT
# IRVINGTON RUGS AND CLEANERS
# IRVINGTON, NEW YORK

## 1.0 INTRODUCTION

Groundwater samples were collected in March 2024 at the Irvington Rugs and Cleaners Site in Irvington, New York, and shipped to Eurofins Lancaster located in Lancaster, PA, for analysis. Samples were analyzed by the following methods:

- Per- and Polyfluorinated Alkyl Substances (PFAS) by Method 1633

Results were reported in the following sample delivery group (SDG):

- 620-17311-1

A Data Usability Summary Report (DUSR) review was completed based on the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation guidance (NYSDEC, 2010). Sample event information included in this DUSR is presented in the following tables:

- Table 1 – Summary of Samples and Analytical Methods
- Table 2 – Summary of Analytical Results
- Table 3 – Qualification Action Summary

A summary of table notes applicable to Tables 1, 2, and 3 is presented just before Table 1.

Laboratory deliverables included:

- Category B deliverables as defined in the NYSDEC Analytical Services Protocols (NYSDEC, 2005).

The DUSR review included the following evaluations as applicable. A table of the project control limits for PFAS is presented in Attachment A. DUSR review checklists and applicable laboratory QC summary forms are included in Attachment B to document QC outliers associated with qualification actions.

- Lab Report Narrative Review
- Data Package Completeness and COC records (Table 1 verification)
- Sample Preservation and Holding Times
- Instrument Calibration (report narrative/lab-qualifier evaluation)
- QC Blanks
- Laboratory Control Samples (LCS)
- Matrix Spike/Matrix Spike Duplicates (MS/MSD)
- Surrogate Spikes (if applicable)
- Internal Standards (if applicable)
- Field Duplicates

- Target Analyte Identification and Quantitation
- Raw Data (chromatograms), Calculation Checks and Transcription Verifications
- Reporting Limits
- Electronic Data Qualification and Verification

Data qualification actions were based on general procedures identified in the NYSDEC validation guideline for PFAS (NYSDEC, 2023).The following laboratory or data review qualifiers are used in the final data presentation:

U = target analyte is not detected above the reported detection limit
J = concentration is estimated
UJ = target analyte is not detected, value is estimated
J+ = concentration is estimated and potentially biased high
J- = concentration is estimated and potentially bias low

Results are interpreted to be usable as reported by the laboratory unless discussed in the following sections.

## 2.0 POTENTIAL DATA LIMITATIONS

Based on the DUSR review the majority of data meet the data quality objectives; however, the following potential limitations were identified.

PFAS

The result for perfluorobutanesulfonic acid (PFBS) in sample 360175-DP004012 was qualified as estimated with potential high bias (J+) based on percent recoveries in the associated MS/MSD that were greater than QC limits. The MS/MSD relative percent difference (RPD) also exceeded QC limits. The qualified result is included in Table 3 with reason codes MSH and MSRPD.

The result for perfluoropentanesulfonic acid (PFPeS) in sample 360175-DP004012 was qualified as estimated with potential low bias (J-) based on percent recoveries in the associated MS/MSD that were less than QC limits. The MS/MSD RPD also exceeded QC limits. The qualified result is included in Table 3 with reason codes MSL and MSRPD.

The reporting limit for perfluorododecanesulfonic acid (PFDoS) in sample 360175-DP004012 was qualified as estimated (UJ) based on percent recoveries in the associated MS/MSD that were less than QC limits. The qualified result is included in Table 3 with reason code MSL.

Reporting limits for 8:2 fluorotelomer sulfonic acid (8:2FTS) and N-methyl perfluorooctane sulfonamide (NMeFOSA) in sample 360175-DP004012 were qualified as estimated (UJ) based on recoveries of the associated extracted internal standards greater than the 50-150 control limits specified by NYSDEC (NYSDEC, 2023). Qualified results are included in Table 3 with reason code EIS.

The lab qualified perfluorononanoic acid (PFNA) in samples 360175-DW006 and 360175-DW006D, perfluoropentanesulfonic acid (PFPeS) in sample 360175-DP004012,

and perfluorooctanesulfonic acid (PFOS) in sample 360175-MW003D027 as estimated due to the associated qualifier ion ratios being outside of acceptance limits. Based on professional judgement, results for the affected analytes in the associated samples were qualified estimated (J) and are listed in Table 3 with reason code IR.

## 3.0 ADDITIONAL QC EXCEEDANCES AND OBSERVATIONS

The following items were not reviewed because data were not available from the laboratory:

- Bile Salt Standard

There were no additional observations or quality control exceedances not specifically addressed above (Section 2.0).

**Reference:**

NYSDEC, 2005. "Analytical Services Protocols"; July 2005.

NYSDEC, 2010. "Technical Guidance for Site Investigation and Remediation-Appendix 2B"; DER-10; Division of Environmental Remediation; May 2010.

NYSDEC, 2023. “Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids; April 2023.

Data Validator: Gabrielle Davis



5/1/2024

Reviewed by: Julie Ricardi



5/1/2024

**Standard Table Notes:**

Sample Type (QC Code)

FS – field sample

FD – field duplicate

TB – trip blank

EB – equipment blank

FB – field blank

Matrix

GW – ground water

BW – blank water

TW – tap water

SV – soil vapor

SED – sediment

SW – surface water

S – soil

L – water

Units

mg/L – milligrams per liter

ng/L – nanograms per liter

µg/L – micrograms per liter

mg/kg – milligrams per kilogram

µg/kg – micrograms per kilogram

µg/$m^3$ – micrograms per cubic meter

Qualifiers

U – not detected above quantitation limit

J – estimated quantity

J+ - estimated quantity, biased high

J- - estimated quantity, biased low

R – data unusable

Fraction

T – total

D – dissolved

N – normal

Qualification Reason Codes

BL1 – method blank qualifier

BL2 – field or trip blank qualifier

CCV – continuing calibration verification recovery outside limits

CCV%D – continuing calibration verification percent difference exceeds goal

CCVRRF – continuing calibration relative response factor low

CI – chromatographic interference present

DCPD – dual column percent difference exceeds limit

E – result exceeds calibration range

EIS - extracted internal standard outside of acceptance criteria

FD – field duplicate precision goal exceeded

FP – false positive interference

HT – holding time for prep or analysis exceeded

HTG – holding time for prep or analysis grossly exceeded

ICV – initial calibration verification recovery outside limit

ICVRRF – initial calibration verification relative response factor low

ICVRSD – initial calibration verification % relative standard deviation exceeds goal

IR – ion ratio was outside of acceptance criteria

ISH – internal standard response greater than limit

ISL – internal standard response less than limit

LCSH – laboratory control sample recovery high

LCSL – laboratory control sample recovery low

LCSRPD – laboratory control sample/duplicate relative % difference precision goal exceeded

LD – lab duplicate precision goal exceeded

MSH – matrix spike and/or MS duplicate recovery high

MSL – matrix spike and/or MS duplicate recovery low

MSRPD – matrix spike/duplicate relative % difference precision goal exceeded

N – analyte identification is not certain

PEM – performance evaluation mixture exceeds limit

PM – sample percent moisture exceeds EPA guideline

SD – serial dilution result exceeds percent difference limit

SP – sample preservation/collection does not meet method requirement

SSH – surrogate recovery high

SSL – surrogate recovery low

TD – dissolved concentration exceeds total

PAHs – polycyclic aromatic hydrocarbons

TABLE 1 - SUMMARY OF SAMPLES AND ANALYTICAL METHODS
DATA USABILITY SUMMARY REPORT
MARCH 2024 SAMPLING EVENT
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | | | | **Method Class** | PFAS |
|---|---|---|---|---|---|---|
| | | | | | **Analysis Method** | E1633 |
| | | | | | **Fraction** | N |
| **SDG** | **Location** | **Field Sample ID** | **Sample Date** | **Media** | **Qc Code** | Parameters |
| 620-17311-1 | DP-04 | 360175-DP004012 | 3/8/2024 | GW | FS | 40 |
| 620-17311-1 | DW-06 | 360175-DW006 | 3/8/2024 | GW | FS | 40 |
| 620-17311-1 | DW-06 | 360175-DW006D | 3/8/2024 | GW | FD | 40 |
| 620-17311-1 | MW-03D | 360175-MW003D027 | 3/8/2024 | GW | FS | 40 |


Created by: KLD 4/15/2024
Checked by: GTD 4/30/2024

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
MARCH 2024 SAMPLING EVENT
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | Location | DP-04 | | DW-06 | | DW-06 | | MW-03D | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Lab Sample Delivery Group | 620-17311-1 | | 620-17311-1 | | 620-17311-1 | | 620-17311-1 | |
| | | Field Sample Date | 3/8/2024 | | 3/8/2024 | | 3/8/2024 | | 3/8/2024 | |
| | | Field Sample ID | 360175-DP004012 | | 360175-DW006 | | 360175-DW006D | | 360175-MW003D027 | |
| | | Qc Code | FS | | FS | | FD | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | 11-Chlororeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | NG/L | 8.53 | U | 7.84 | U | 8.24 | U | 7.78 | U |
| E1633 | 2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA) | NG/L | 53.3 | U | 49 | U | 51.5 | U | 48.6 | U |
| E1633 | 3-Perfluoroheptyl propanoic acid (7:3FTCA) | NG/L | 53.3 | U | 49 | U | 51.5 | U | 48.6 | U |
| E1633 | 3-Perfluoropropyl propanoic acid (3:3FTCA) | NG/L | 10.7 | U | 9.79 | U | 10.3 | U | 9.73 | U |
| E1633 | 4,8-dioxa-3H-perfluorononanoic acid (ADONA) | NG/L | 8.53 | U | 7.84 | U | 8.24 | U | 7.78 | U |
| E1633 | 4:2 Fluorotelomer sulfonic acid (4:2FTS) | NG/L | 8.53 | U | 7.84 | U | 8.24 | U | 7.78 | U |
| E1633 | 6:2 Fluorotelomer sulfonic acid (6:2FTS) | NG/L | 8.53 | U | 7.84 | U | 8.24 | U | 7.78 | U |
| E1633 | 8:2 Fluorotelomer sulfonic acid (8:2FTS) | NG/L | 8.53 | UJ | 7.84 | U | 8.24 | U | 7.78 | U |
| E1633 | 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) | NG/L | 8.53 | U | 7.84 | U | 8.24 | U | 7.78 | U |
| E1633 | Hexafluoropropylene oxide dimer acid (HFPO-DA) | NG/L | 8.53 | U | 7.84 | U | 8.24 | U | 7.78 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamide (NEtFOSA) | NG/L | 2.13 | U | 1.96 | U | 2.06 | U | 1.95 | U |
| E1633 | N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE) | NG/L | 21.3 | U | 19.6 | U | 20.6 | U | 19.5 | U |
| E1633 | N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | NG/L | 3.2 | | 1.96 | U | 2.06 | U | 1.95 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | NG/L | 2.13 | UJ | 1.96 | U | 2.06 | U | 1.95 | U |
| E1633 | N-Methyl Perfluorooctane Sulfonamidoethanol (NMEFOSE) | NG/L | 21.3 | U | 19.6 | U | 20.6 | U | 19.5 | U |
| E1633 | N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) | NG/L | 1.76 | J | 3.92 | U | 4.12 | U | 3.89 | U |
| E1633 | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NG/L | 4.27 | U | 3.92 | U | 4.12 | U | 3.89 | U |
| E1633 | Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) | NG/L | 4.27 | U | 3.92 | U | 4.12 | U | 3.89 | U |
| E1633 | Perfluoro-3-methoxypropanoic acid (PFMPA) | NG/L | 4.27 | U | 3.92 | U | 4.12 | U | 3.89 | U |
| E1633 | Perfluoro-4-methoxybutanoic acid (PFMBA) | NG/L | 4.27 | U | 3.92 | U | 4.12 | U | 3.89 | U |
| E1633 | Perfluorobutanesulfonic acid (PFBS) | NG/L | 20.9 | J+ | 7.36 | | 7.41 | | 6.97 | |
| E1633 | Perfluorobutanoic acid (PFBA) | NG/L | 23.3 | | 5.94 | J | 6.5 | J | 9.49 | |
| E1633 | Perfluorodecanesulfonic acid (PFDS) | NG/L | 2.13 | U | 1.96 | U | 2.06 | U | 1.95 | U |
| E1633 | Perfluorodecanoic acid (PFDA) | NG/L | 15.5 | | 1.96 | U | 2.06 | U | 1.95 | U |
| E1633 | Perfluorododecanesulfonic acid (PFDoS) | NG/L | 2.13 | UJ | 1.96 | U | 2.06 | U | 1.95 | U |
| E1633 | Perfluorododecanoic acid (PFDoA) | NG/L | 2.13 | U | 1.96 | U | 2.06 | U | 1.95 | U |
| E1633 | Perfluoroheptanesulfonic acid (PFHpS) | NG/L | 2.53 | | 1.96 | U | 2.06 | U | 1.95 | U |
| E1633 | Perfluoroheptanoic acid (PFHpA) | NG/L | 47.3 | | 2.64 | | 2.6 | | 6.29 | |
| E1633 | Perfluorohexanesulfonic acid (PFHxS) | NG/L | 15.1 | | 1.95 | J | 1.93 | J | 2.54 | |
| E1633 | Perfluorohexanoic acid (PFHxA) | NG/L | 48.3 | | 3.66 | | 3.49 | | 14.6 | |
| E1633 | Perfluorononanesulfonate | NG/L | 2.13 | U | 1.96 | U | 2.06 | U | 1.95 | U |
| E1633 | Perfluorononanoic acid (PFNA) | NG/L | 22.7 | | 0.854 | J | 0.766 | J | 1.95 | U |


Created by: KLD 4/30/2024
Checked by: GTD 5/1/2024

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
MARCH 2024 SAMPLING EVENT
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| | | Location | DP-04 | | DW-06 | | DW-06 | | MW-03D | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Lab Sample Delivery Group | 620-17311-1 | | 620-17311-1 | | 620-17311-1 | | 620-17311-1 | |
| | | Field Sample Date | 3/8/2024 | | 3/8/2024 | | 3/8/2024 | | 3/8/2024 | |
| | | Field Sample ID | 360175-DP004012 | | 360175-DW006 | | 360175-DW006D | | 360175-MW003D027 | |
| | | Qc Code | FS | | FS | | FD | | FS | |
| **Method** | **Parameter** | **Units** | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| E1633 | Perfluorooctanesulfonamide (PFOSA) | NG/L | 3.62 | | 1.96 | U | 2.06 | U | 1.95 | U |
| E1633 | Perfluorooctanesulfonic acid (PFOS) | NG/L | 331 | | 11.3 | | 11.2 | | 2.3 | J |
| E1633 | Perfluorooctanoic acid (PFOA) | NG/L | 66.7 | | 13.6 | | 13.9 | | 21.9 | |
| E1633 | Perfluoropentanesulfonic acid (PFPeS) | NG/L | 33.7 | J- | 0.513 | J | 2.06 | U | 1.95 | U |
| E1633 | Perfluoropentanoic acid (PFPeA) | NG/L | 61.5 | | 2.96 | J | 3.62 | J | 15.6 | |
| E1633 | Perfluorotetradecanoic acid (PFTeDA) | NG/L | 2.13 | U | 1.96 | U | 2.06 | U | 1.95 | U |
| E1633 | Perfluorotridecanoic acid (PFTrDA) | NG/L | 2.13 | U | 1.96 | U | 2.06 | U | 1.95 | U |
| E1633 | Perfluoroundecanoic acid (PFUnA) | NG/L | 2.13 | U | 1.96 | U | 2.06 | U | 1.95 | U |

TABLE 3 - SUMMARY OF QUALIFICATION ACTIONS
DATA USABILITY SUMMARY REPORT
MARCH 2024 SAMPLING EVENT
IRVINGTON RUGS AND CLEANERS
IRVINGTON, NEW YORK

| Lab SDG | Lab Sample ID | Field Sample ID | Method | Fraction | Parameter | Lab Result | Lab Qualifier | Final Result | Final Qualifier | Val Reason Code | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 620-17311-1 | 620-17311-1 | 360175-DW006 | E1633 | N | Perfluorononanoic acid (PFNA) | 0.854 | J I | 0.854 | J | IR | NG/L |
| 620-17311-1 | 620-17311-2 | 360175-DW006D | E1633 | N | Perfluorononanoic acid (PFNA) | 0.766 | J I | 0.766 | J | IR | NG/L |
| 620-17311-1 | 620-17311-3 | 360175-DP004012 | E1633 | N | N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | 2.13 | U | 2.13 | UJ | EIS | NG/L |
| 620-17311-1 | 620-17311-3 | 360175-DP004012 | E1633 | N | Perfluoropentanesulfonic acid (PFPeS) | 33.7 | F2 I F1 | 33.7 | J- | MSL, MSRPD, IR | NG/L |
| 620-17311-1 | 620-17311-3 | 360175-DP004012 | E1633 | N | Perfluorobutanesulfonic acid (PFBS) | 20.9 | F2 F1 | 20.9 | J+ | MSH, MSRPD | NG/L |
| 620-17311-1 | 620-17311-3 | 360175-DP004012 | E1633 | N | 8:2 Fluorotelomer sulfonic acid (8:2FTS) | 8.53 | U | 8.53 | UJ | EIS | NG/L |
| 620-17311-1 | 620-17311-3 | 360175-DP004012 | E1633 | N | Perfluorododecanesulfonic acid (PFDoS) | 2.13 | U | 2.13 | UJ | MSL | NG/L |
| 620-17311-1 | 620-17311-4 | 360175-MW003D027 | E1633 | N | Perfluorooctanesulfonic acid (PFOS) | 2.3 | I | 2.3 | J | IR | NG/L |


Created by: KLD 4/30/2024
Checked by: GTD 5/1/2024

**ATTACHMENT A**
**SUMMARY OF VALIDATION QC LIMITS FOR SURROGATES, SPIKES, AND DUPLICATES**
**BASED ON THE REGION 2 VALIDATION GUIDELINES**

| PARAMETER | QC TEST | ANALYTE | WATER (%R) | WATER (RPD) |
|---|---|---|---|---|
| Per- and Polyfluorinated Alkyl Substances (PFAS) | Surrogate | All Surrogate Compounds | 50 - 150 | |
| | LCS | All Target Compounds | 70 - 130 | |
| | MS/MSD | All Target Compounds | 70 - 130 | 30 |
| | Field Duplicate | All Target Compounds | | 30 |

# DATA USABILITY SUMMARY REPORT
# MARCH 2024 SAMPLING EVENT
# IRVINGTON RUGS AND CLEANERS
# IRVINGTON, NEW YORK

## ATTACHMENT B

# PFAS

**NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD**
**Project:** Irvington Rugs March 2024
**Method:** USEPA 1633
**Laboratory:** TAL New England **SDG(s):** 620-17311-1
**Date:** 4/30/2024
**Reviewer:** Gabrielle Davis
Based on NYSDEC *Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids,* April 2023

**Review Level** [X] NYSDEC DUSR [ ] USEPA Region II Guideline

1. ☑ **Case Narrative Review and Data Package Completeness** COMMENTS
   Were problems noted? No
   Were all the samples on the COC analyzed for the requested analyses? YES NO (circle one)
   Are Field Sample IDs and Locations assigned correctly? YES NO (circle one)

2. ☑ **Holding time and Sample Collection**
   Were all samples extracted within the 28 day holding time? Were aqueous sample extracts analyzed with 28 days of extraction, soil sample extracts within 40 days of extraction per NYSDEC Data Review Guidelines? YES NO (circle one)

   Were all samples received in proper containers at cooler temp ≤6 degrees C and protected from light? YES NO (circle one)

3. ☑ **QC Blanks**
   Are method blanks free of contamination? YES NO (circle one)
   Are rinse blanks free of contamination? YES NO NA (circle one)
   Are field reagent blanks free of contamination? YES NO NA (circle one)

   Per NYSDEC guidelines, there should be no detections in the method blanks greater than the RLs. EBs, RBs, FBs should be evaluated in the same manner as method blanks. Use the most contaminated blank to evaluate associated sample results.

   Use the following table from NYSDEC Data Review Guidelines for qualification actions:

| Blank Result | Sample Result | Qualification |
|---|---|---|
| Any detection | <Reporting limit | Qualify as ND at reporting limit |
| Any detection | >Reporting Limit and >10x the blank result | No qualification |
| >Reporting limit | >Reporting limit and <10x blank result | J+ biased high |

4. ☑ **Mass Calibration Verification – Data Package Narrative Review**
   Did the laboratory narrative identify any results that were not within method criteria? YES NO (circle one)
   If yes, use professional judgment to evaluate data and qualify results if needed

5. ☑ **Extracted Internal Standards [EIS]** (water/soil limits: 50-150%; poor performing analytes [PFBA, PFPeA, fluorotelomer sulfonates] limits: 25-150%) RTs within 0.4 minutes (24 seconds) of CCAL standard (or ICAL mid-point if samples follow ICAL)
   Were all extracted internal standard results within limits? YES NO (circle one) See attached - UJ, EIS
   Were any extracted internal standard recoveries < 10%? (use professional judgment; reject ND)

6. ☑ **Non-extracted Internal Standards (NIS) [Instrument Injected Internal Standards] – Data Package Narrative Review**
(Area Limits = -50% to +100%, RTs within 0.4 minutes (24 seconds) of daily CCAL standard (or ICAL mid-point if samples follow ICAL))
Did the laboratory narrative identify any sample injected internal standards that were not within criteria? YES NO (circle one)

Did the laboratory qualify results based on injected internal standard exceedances? YES NO
If yes to above, use professional judgment to evaluate data and qualify results if needed

7. ☑ **Instrument Calibration – Data Package Narrative Review**
Did the laboratory narrative identify compounds that were not within criteria in the initial and/or continuing calibration standards? YES NO (circle one)

Initial Calibration %RSD ≤20, Continuing Calibration % R 70-130, ICV % R 70-130,

Did the laboratory qualify results based on initial or continuing calibration exceedances? YES NO

Are the Signal to Noise ratios for all target compounds > 3 in the low point standard? YES NO

Were branched isomers included in calibration standards for PFOS and other compounds where standards are available? YES NO

8. ☑ **Matrix Spike** (70-130%)
Were MS/MSDs submitted/analyzed? YES NO

See attached - J+, MSH, MSRPD, J-, MSL, MSRPD and UJ, MSL

Were all results within limits? YES NO NA (circle one)

9. ☑ **Field Duplicates** (water/soil RPD limit: ≤30)
Were Field Duplicates submitted/analyzed? YES NO

10. ☑ **Laboratory Control Sample Results** (70-130%)
Were all results within limits? YES NO (circle one)

11. ☑ **Raw Data Review and Calculation Checks (Note: checks 13 and 14 apply to sample(s) selected for calculation checks and raw data review)**

See attached for calculation checks

12. ☑ **Bile Salt Standard Retention Time (RT) Check**
Did the laboratory analyze a bile salt standard? (required by Method 1633 for all sample matrices) YES NO (circle one)

Is the RT of the bile salt standard >1 minute from the RT window for PFOS (including linear and branched isomers)? YES NO (circle one)

NA

NOTE: Three bile acids (TDCA, TCDCA, and TUDCA) have the same (<1 amu) primary transition masses as PFOS: m/z 498.9 ->79.9 for PFOS, and m/z 499.2 ->79.9 for the bile acids. As a result, the presence of these bile acids in samples can cause high bias to PFOS concentrations if co-eluting with PFOS. The bile salt standard must demonstrate chromatographic separation so there is no co-elution with any PFOS isomer.

13. ☑ **Signal-to-Noise (S/N) Ratio for positive identification/detection of Target Analytes and EIS--**
From NYSDEC guidance (April 2023): *The signal to noise ratio for the primary ion should be at least 3:1. If the ratio is less than 3:1, the peak is discernable from the baseline noise and symmetrical, the result can be reported. If the peak appears to be baseline noise and/or the shape is irregular, qualify the result as tentatively identified.*

From Method 1633 4th Draft: Quantitation ions and confirmation ions S/N ≥ 3; or if no confirmation ion is expected (Method 1633 4th Draft Table 9), quantitation ion must have S/N ≥10, as described in Method 1633 4th Draft Section 15.1.1: *For target analytes or EISs to be identified, peak responses of the quantitation and confirmation ions must be at least three times the background noise level (S/N 3:1). The quantitation ion must have a S/N ≥ 10:1 if there is no confirmation ion* [specified in Table 9]. *If the S/N ratio is not met due to high background noise, the laboratory must correct the issue (e.g., perform instrument troubleshooting and any necessary maintenance, such as cleaning the ion source, replacing the LC column, or if needed, repeat the cleanup steps to remove background due to the sample matrix). If the S/N ratio is not met but the background is low, then the analyte is to be considered a non-detect.* Note: If lab result is <RL or <LOQ and expected confirmation ion is not detected, qualify U at RL, or LOD or sample concentration, as appropriate. If lab result is >RL or >LOQ and expected confirmation ion is not detected, review raw data and use professional judgment. Okay

14. ☑ **Ion Abundance Ratio (IAR) for positive identification/detection of Target Analytes and EIS--**
    - Confirm transition ions in Method 1633 4th Draft Table 9 (or "*Analyte Ions Monitored, Extracted Internal Standard, and Non-extracted Internal Standard Used for Quantification*" table in current draft Method 1633) were used for all analytes Okay
    - As defined in Method 1633 4th Draft Section 14.3.5: AreaQ1/AreaQ2 where Q1 and Q2 are primary and secondary transition masses for detected compounds. Acceptance criteria are based on comparison with ion ratios established by the ICAL midpoint standard or daily CCV. If secondary transition masses are identified in Method 1633 4th Draft Table 9 (or "*Analyte Ions Monitored, Extracted Internal Standard, and Non-extracted Internal Standard Used for Quantification*" table in current draft Method 1633), IAR must be within ±50% of IAR established for the ICAL midpoint standard or daily CCV per Section 15.1.3. Check ion ratios reported for LCS and samples. See attached - subset J, IR

15. ☑ **Electronic Data Review and Edits**
    Does the EDD match the Form Is? YES NO (circle one)

16. ☑ **Tables**
    **Table 1** (Samples and Analytical Methods)
    **Table 2** (Analytical Results)
    **Table 3** (Qualification Actions)
    Were all tables produced and reviewed? YES NO (circle one)

GTD 4/30/2024

# Isotope Dilution Summary

Client: WSP USA Environment & Infrastructure Inc. Job ID: 620-17311-1
Project/Site: Irvington R&C

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

**Matrix: Water** **Prep Type: Total/NA**

| | | Percent Isotope Dilution Recovery (Acceptance Limits) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lab Sample ID | Client Sample ID | PFBA (5-130) | PFPeA (40-130) | 13C5PHA (40-130) | C4PFHA (40-130) | C8PFOA (40-130) | C9PFNA (40-130) | C6PFDA (40-130) | 13C7PUA (30-130) |
| 620-17311-1 | 360175-DW006 | 85.3 | 82.4 | 84.9 | 82.3 | 99.9 | 83.8 | 82.3 | 70.6 |
| 620-17311-2 | 360175-DW006D | 89.5 | 85.7 | 86.1 | 88.8 | 82.5 | 82.6 | 78.0 | 73.1 |
| 620-17311-3 | 360175-DP004012 | 80.3 | 77.3 | 82.1 | 89.3 | 74.1 | 88.1 | 81.3 | 80.0 |
| 620-17311-3 MS | 360175-DP004012 | 84.6 | 79.7 | 86.0 | 90.4 | 100 | 95.6 | 93.5 | 89.1 |
| 620-17311-3 MSD | 360175-DP004012 | 79.9 | 82.1 | 86.9 | 94.3 | 109 | 95.1 | 86.2 | 91.2 |
| 620-17311-4 | 360175-MW003D027 | 89.0 | 84.9 | 89.4 | 87.5 | 96.7 | 88.4 | 89.5 | 83.3 |
| LCS 410-483195/2-A | Lab Control Sample | 93.9 | 87.7 | 90.0 | 83.8 | 99.3 | 92.1 | 92.0 | 90.5 |
| LLCS 410-483195/3-A | Lab Control Sample | 92.4 | 91.4 | 95.3 | 101 | 96.8 | 96.6 | 89.1 | 87.1 |
| MB 410-483195/1-A | Method Blank | 87.0 | 86.0 | 82.5 | 80.4 | 92.5 | 87.6 | 86.7 | 82.3 |

| | | Percent Isotope Dilution Recovery (Acceptance Limits) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lab Sample ID | Client Sample ID | PFDoDA (10-130) | PFTDA (10-130) | C3PFBS (40-135) | C3PFHS (40-130) | C8PFOS (40-130) | PFOSA (40-130) | d3NMFOS (40-170) | d5NEFOS (25-135) |
| 620-17311-1 | 360175-DW006 | 58.8 | 51.2 | 90.3 | 83.6 | 78.7 | 71.0 | 70.9 | 62.6 |
| 620-17311-2 | 360175-DW006D | 60.3 | 51.3 | 89.8 | 90.9 | 83.0 | 73.3 | 74.7 | 66.5 |
| 620-17311-3 | 360175-DP004012 | 70.1 | 52.4 | 91.5 | 106 | 91.1 | 93.4 | 75.3 | 73.7 |
| 620-17311-3 MS | 360175-DP004012 | 77.9 | 66.8 | 125 | 98.8 | 94.6 | 99.9 | 78.9 | 77.1 |
| 620-17311-3 MSD | 360175-DP004012 | 76.4 | 61.6 | 103 | 106 | 88.1 | 98.4 | 82.0 | 75.6 |
| 620-17311-4 | 360175-MW003D027 | 76.7 | 71.9 | 97.8 | 85.2 | 88.7 | 72.8 | 82.9 | 79.3 |
| LCS 410-483195/2-A | Lab Control Sample | 85.2 | 81.1 | 102 | 103 | 90.4 | 81.6 | 89.5 | 92.8 |
| LLCS 410-483195/3-A | Lab Control Sample | 85.0 | 81.3 | 97.5 | 91.5 | 93.3 | 80.3 | 91.2 | 82.7 |
| MB 410-483195/1-A | Method Blank | 78.4 | 78.0 | 89.6 | 86.0 | 89.5 | 80.6 | 86.8 | 86.7 |

| | | Percent Isotope Dilution Recovery (Acceptance Limits) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Lab Sample ID | Client Sample ID | M242FTS (40-200) | M262FTS (40-200) | M282FTS (40-300) | HFPODA (40-130) | NMFM (10-130) | NEFM (10-130) | d5NPFSA (10-130) | d3NMFSA (10-130) | |
| 620-17311-1 | 360175-DW006 | 91.0 | 97.2 | 70.2 | 77.8 | 53.7 | 51.5 | 50.9 | 53.1 | |
| 620-17311-2 | 360175-DW006D | 112 | 88.9 | 85.6 | 84.4 | 56.4 | 55.9 | 56.3 | 58.7 | |
| 620-17311-3 | 360175-DP004012 UJ, EIS | 134 | 139 | 153 | 73.3 | 65.6 | 55.9 | 64.3 | 47.1 | |
| 620-17311-3 MS | 360175-DP004012 | 113 | 116 | 131 | 76.7 | 73.5 | 62.6 | 75.2 | 59.9 | |
| 620-17311-3 MSD | 360175-DP004012 | 138 | 150 | 144 | 73.8 | 78.2 | 59.0 | 60.4 | 45.4 | MSD - no quals |
| 620-17311-4 | 360175-MW003D027 | 101 | 86.5 | 84.4 | 84.9 | 73.9 | 72.8 | 67.0 | 67.0 | |
| LCS 410-483195/2-A | Lab Control Sample | 99.6 | 98.9 | 93.6 | 84.7 | 91.0 | 88.1 | 74.5 | 71.9 | |
| LLCS 410-483195/3-A | Lab Control Sample | 106 | 86.6 | 92.8 | 93.7 | 90.1 | 85.9 | 74.0 | 70.9 | |
| MB 410-483195/1-A | Method Blank | 82.6 | 82.7 | 80.8 | 78.3 | 84.2 | 82.0 | 73.2 | 71.7 | |

**Surrogate Legend**

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoDA = 13C2-PFDoDA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA

GTD 4/30/2024

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: 620-17311-3 MS** **Client Sample ID: 360175-DP004012**
**Matrix: Water** **Prep Type: Total/NA**
**Analysis Batch: 483605** **Prep Batch: 483195**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| Perfluoropentanoic acid | 61.5 | | 49.9 | 115.8 | | ng/L | | 109 | 65 - 135 |
| Perfluorohexanoic acid | 48.3 | | 25.0 | 70.24 | | ng/L | | 88 | 70 - 145 |
| Perfluoroheptanoic acid | 47.3 | | 25.0 | 71.86 | | ng/L | | 98 | 70 - 150 |
| Perfluorooctanoic acid | 66.7 | | 25.0 | 87.84 | | ng/L | | 85 | 70 - 150 |
| Perfluorononanoic acid | 22.7 | | 25.0 | 46.90 | | ng/L | | 97 | 70 - 150 |
| Perfluorodecanoic acid | 15.5 | | 25.0 | 38.07 | | ng/L | | 91 | 70 - 140 |
| Perfluoroundecanoic acid | ND | U | 25.0 | 24.47 | | ng/L | | 98 | 70 - 145 |
| Perfluorododecanoic acid | ND | U | 25.0 | 26.57 | | ng/L | | 106 | 70 - 140 |
| Perfluorotridecanoic acid | ND | U | 25.0 | 24.40 | | ng/L | | 98 | 65 - 140 |
| Perfluorotetradecanoic acid | ND | U | 25.0 | 25.20 | | ng/L | | 101 | 60 - 140 |
| Perfluorobutanesulfonic acid J+, MSH | 20.9 | F2 F1 | 22.1 | 101.3 | I F1 | ng/L | | 364 | 60 - 145 |
| Perfluoropentanesulfonic acid J-, MSL | 33.7 | F2 I F1 | 23.4 | 37.02 | F1 I | ng/L | | 14 | 65 - 140 |
| Perfluorohexanesulfonic acid | 15.1 | | 22.7 | 34.80 | | ng/L | | 87 | 65 - 145 |
| Perfluoroheptanesulfonic acid | 2.53 | | 23.8 | 26.26 | | ng/L | | 100 | 70 - 150 |
| Perfluorooctanesulfonic acid Sample result >4X spike - no quals | 331 | | 23.2 | 345.6 | 4 | ng/L | | 62 | 55 - 150 |
| Perfluorononanesulfonic acid | ND | U | 24.0 | 22.33 | | ng/L | | 93 | 65 - 145 |
| Perfluorodecanesulfonic acid | ND | U | 24.1 | 19.59 | | ng/L | | 81 | 60 - 145 |
| Perfluorododecanesulfonic acid (PFDoS) UJ, MSL | ND | U | 24.2 | 13.23 | | ng/L | | 55 | 50 - 145 |
| 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2) | ND | U | 93.3 | 93.50 | | ng/L | | 100 | 70 - 145 |
| 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | ND | U | 94.7 | 106.5 | | ng/L | | 113 | 65 - 155 |
| 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | ND | U | 95.7 | 99.97 | | ng/L | | 105 | 60 - 150 |
| Perfluorooctanesulfonamide | 3.62 | | 25.0 | 26.78 | | ng/L | | 93 | 70 - 145 |
| NMeFOSA | ND | U | 25.0 | 25.90 | | ng/L | | 104 | 60 - 150 |
| N-ethylperfluoro-1-octanesulfonamide | ND | U | 25.0 | 23.56 | | ng/L | | 94 | 65 - 145 |
| NMeFOSAA | 1.76 | J | 25.0 | 25.47 | | ng/L | | 95 | 50 - 140 |
| NEtFOSAA | 3.20 | | 25.0 | 28.43 | | ng/L | | 101 | 70 - 145 |
| 2-(N-methylperfluoro-1-octanesulfonamido) ethanol | ND | U | 250 | 235.9 | | ng/L | | 95 | 70 - 145 |
| 2-(N-ethylperfluoro-1-octanesulfonamido) ethanol | ND | U | 250 | 241.0 | | ng/L | | 97 | 70 - 135 |
| HFPO-DA | ND | U | 99.9 | 96.26 | | ng/L | | 96 | 70 - 140 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | ND | U | 94.1 | 103.4 | | ng/L | | 110 | 65 - 145 |
| Perfluoro-3-methoxypropanoic acid | ND | U | 49.9 | 54.13 | | ng/L | | 108 | 55 - 140 |
| Perfluoro(4-methoxybutanoic acid) | ND | U | 49.9 | 57.07 | | ng/L | | 114 | 60 - 150 |
| Perfluoro-3,6-dioxaheptanoic acid | ND | U | 49.9 | 44.04 | | ng/L | | 88 | 50 - 150 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | ND | U | 93.1 | 117.2 | | ng/L | | 126 | 70 - 155 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | ND | U | 94.1 | 91.26 | | ng/L | | 97 | 55 - 160 |
| PFEESA | ND | U | 44.4 | 41.84 | | ng/L | | 94 | 70 - 140 |
| 3:3 FTCA | ND | U | 125 | 147.5 | | ng/L | | 118 | 65 - 130 |

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: 620-17311-3 MS**
**Matrix: Water**
**Analysis Batch: 483605**

**Client Sample ID: 360175-DP004012**
**Prep Type: Total/NA**
**Prep Batch: 483195**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|---|---|
| 5:3 FTCA | ND | U | 624 | 689.5 | | ng/L | | 110 | 70 - 135 |
| 7:3 FTCA | ND | U | 624 | 839.7 | | ng/L | | 135 | 50 - 145 |

High bias, sample ND - no quals

| *Isotope Dilution* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *13C4 PFBA* | *84.6* | | *5 - 130* |
| *13C5 PFPeA* | *79.7* | | *40 - 130* |
| *13C5 PFHxA* | *86.0* | | *40 - 130* |
| *13C4 PFHpA* | *90.4* | | *40 - 130* |
| *13C8 PFOA* | *100* | | *40 - 130* |
| *13C9 PFNA* | *95.6* | | *40 - 130* |
| *13C6 PFDA* | *93.5* | | *40 - 130* |
| *13C7 PFUnA* | *89.1* | | *30 - 130* |
| *13C2-PFDoDA* | *77.9* | | *10 - 130* |
| *13C2 PFTeDA* | *66.8* | | *10 - 130* |
| *13C3 PFBS* | *125* | | *40 - 135* |
| *13C3 PFHxS* | *98.8* | | *40 - 130* |
| *13C8 PFOS* | *94.6* | | *40 - 130* |
| *13C8 FOSA* | *99.9* | | *40 - 130* |
| *d3-NMeFOSAA* | *78.9* | | *40 - 170* |
| *d5-NEtFOSAA* | *77.1* | | *25 - 135* |
| *M2-4:2 FTS* | *113* | | *40 - 200* |
| *M2-6:2 FTS* | *116* | | *40 - 200* |
| *M2-8:2 FTS* | *131* | | *40 - 300* |
| *13C3 HFPO-DA* | *76.7* | | *40 - 130* |
| *d7-N-MeFOSE-M* | *73.5* | | *10 - 130* |
| *d9-N-EtFOSE-M* | *62.6* | | *10 - 130* |
| *d5-NEtPFOSA* | *75.2* | | *10 - 130* |
| *d3-NMePFOSA* | *59.9* | | *10 - 130* |

**Lab Sample ID: 620-17311-3 MSD**
**Matrix: Water**
**Analysis Batch: 483605**

**Client Sample ID: 360175-DP004012**
**Prep Type: Total/NA**
**Prep Batch: 483195**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid | 23.3 | | 105 | 138.7 | | ng/L | | 110 | 70 - 140 | 4 | 30 |
| Perfluoropentanoic acid | 61.5 | | 52.6 | 124.4 | | ng/L | | 120 | 65 - 135 | 7 | 30 |
| Perfluorohexanoic acid | 48.3 | | 26.3 | 70.91 | | ng/L | | 86 | 70 - 145 | 1 | 30 |
| Perfluoroheptanoic acid | 47.3 | | 26.3 | 68.61 | | ng/L | | 81 | 70 - 150 | 5 | 30 |
| Perfluorooctanoic acid | 66.7 | | 26.3 | 96.73 | | ng/L | | 114 | 70 - 150 | 10 | 30 |
| Perfluorononanoic acid | 22.7 | | 26.3 | 46.24 | | ng/L | | 90 | 70 - 150 | 1 | 30 |
| Perfluorodecanoic acid | 15.5 | | 26.3 | 40.22 | | ng/L | | 94 | 70 - 140 | 5 | 30 |
| Perfluoroundecanoic acid | ND | U | 26.3 | 24.93 | | ng/L | | 95 | 70 - 145 | 2 | 30 |
| Perfluorododecanoic acid | ND | U | 26.3 | 27.30 | | ng/L | | 104 | 70 - 140 | 3 | 30 |
| Perfluorotridecanoic acid | ND | U | 26.3 | 25.61 | | ng/L | | 97 | 65 - 140 | 5 | 30 |
| Perfluorotetradecanoic acid | ND | U | 26.3 | 26.77 | | ng/L | | 102 | 60 - 140 | 6 | 30 |
| Perfluorobutanesulfonic acid | 20.9 | F2 F1 | 23.2 | 266.1 | I F1 F2 | ng/L | | 1055 | 60 - 145 | 90 | 30 |
| Perfluoropentanesulfonic acid | 33.7 | F2 I F1 | 24.7 | 61.85 | I F2 | ng/L | | 114 | 65 - 140 | 50 | 30 |
| Perfluorohexanesulfonic acid | 15.1 | | 23.9 | 45.08 | | ng/L | | 125 | 65 - 145 | 26 | 30 |
| Perfluoroheptanesulfonic acid | 2.53 | | 25.0 | 29.04 | | ng/L | | 106 | 70 - 150 | 10 | 30 |

Add MSRPD

## Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

**Lab Sample ID: 620-17311-3 MSD**
**Matrix: Water**
**Analysis Batch: 483605**

**Client Sample ID: 360175-DP004012**
**Prep Type: Total/NA**
**Prep Batch: 483195**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Perfluorooctanesulfonic acid | 331 | | 24.4 | 361.7 | 4 | ng/L | | 124 | 55 - 150 | 5 | 30 |
| Perfluorononanesulfonic acid | ND | U | 25.2 | 24.17 | | ng/L | | 96 | 65 - 145 | 8 | 30 |
| Perfluorodecanesulfonic acid | ND | U | 25.3 | 20.71 | | ng/L | | 82 | 60 - 145 | 6 | 30 |
| Perfluorododecanesulfonic acid (PFDoS) | ND | U | 25.4 | 14.14 | | ng/L | | 56 | 50 - 145 | 7 | 30 |
| 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2) | ND | U | 98.2 | 74.21 | | ng/L | | 76 | 70 - 145 | 23 | 30 |
| 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | ND | U | 99.7 | 99.20 | | ng/L | | 100 | 65 - 155 | 7 | 30 |
| 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | ND | U | 101 | 110.5 | | ng/L | | 110 | 60 - 150 | 10 | 30 |
| Perfluorooctanesulfonamide | 3.62 | | 26.3 | 28.30 | | ng/L | | 94 | 70 - 145 | 6 | 30 |
| NMeFOSA | ND | U | 26.3 | 30.01 | | ng/L | | 114 | 60 - 150 | 15 | 30 |
| N-ethylperfluoro-1-octanesulfonamide | ND | U | 26.3 | 25.62 | | ng/L | | 97 | 65 - 145 | 8 | 30 |
| NMeFOSAA | 1.76 | J | 26.3 | 24.25 | | ng/L | | 86 | 50 - 140 | 5 | 30 |
| NEtFOSAA | 3.20 | | 26.3 | 28.75 | | ng/L | | 97 | 70 - 145 | 1 | 30 |
| 2-(N-methylperfluoro-1-octanesulfonamido) ethanol | ND | U | 263 | 260.0 | | ng/L | | 99 | 70 - 145 | 10 | 30 |
| 2-(N-ethylperfluoro-1-octanesulfonamido) ethanol | ND | U | 263 | 263.4 | | ng/L | | 100 | 70 - 135 | 9 | 30 |
| HFPO-DA | ND | U | 105 | 106.7 | | ng/L | | 101 | 70 - 140 | 10 | 30 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | ND | U | 99.1 | 116.2 | | ng/L | | 117 | 65 - 145 | 12 | 30 |
| Perfluoro-3-methoxypropanoic acid | ND | U | 52.6 | 53.98 | | ng/L | | 103 | 55 - 140 | 0 | 30 |
| Perfluoro(4-methoxybutanoic acid) | ND | U | 52.6 | 55.28 | | ng/L | | 105 | 60 - 150 | 3 | 30 |
| Perfluoro-3,6-dioxaheptanoic acid | ND | U | 52.6 | 44.87 | | ng/L | | 85 | 50 - 150 | 2 | 30 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | ND | U | 98.0 | 134.7 | | ng/L | | 137 | 70 - 155 | 14 | 30 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | ND | U | 99.1 | 103.4 | | ng/L | | 104 | 55 - 160 | 12 | 30 |
| PFEESA | ND | U | 46.8 | 40.64 | | ng/L | | 87 | 70 - 140 | 3 | 30 |
| 3:3 FTCA | ND | U | 131 | 154.4 | | ng/L | | 117 | 65 - 130 | 5 | 30 |
| 5:3 FTCA | ND | U | 657 | 747.9 | | ng/L | | 114 | 70 - 135 | 8 | 30 |
| 7:3 FTCA | ND | U | 657 | 914.4 | | ng/L | | 139 | 50 - 145 | 9 | 30 |

Already qual'd UJ, MSL

High bias, sample ND - no quals

High bias, sample ND - no quals

| *Isotope Dilution* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *13C4 PFBA* | *79.9* | | *5 - 130* |
| *13C5 PFPeA* | *82.1* | | *40 - 130* |
| *13C5 PFHxA* | *86.9* | | *40 - 130* |
| *13C4 PFHpA* | *94.3* | | *40 - 130* |
| *13C8 PFOA* | *109* | | *40 - 130* |
| *13C9 PFNA* | *95.1* | | *40 - 130* |
| *13C6 PFDA* | *86.2* | | *40 - 130* |
| *13C7 PFUnA* | *91.2* | | *30 - 130* |
| *13C2-PFDoDA* | *76.4* | | *10 - 130* |
| *13C2 PFTeDA* | *61.6* | | *10 - 130* |

GTD 4/30/2024

Sample ID: 360175-DW006 / 360175-DW006D

| Compound | Result | LabQual | Dup | LabQual | RPD |
|---|---|---|---|---|---|
| Perfluorobutanesulfonic acid (PFBS) | 7.36 | | 7.41 | | 0.7 |
| Perfluoroheptanoic acid (PFHpA) | 2.64 | | 2.60 | | 1.5 |
| Perfluorohexanoic acid (PFHxA) | 3.66 | | 3.49 | | 4.8 |
| Perfluorooctanesulfonic acid (PFOS) | 11.3 | | 11.2 | | 0.9 |
| Perfluorooctanoic acid (PFOA) | 13.6 | | 13.9 | | 2.2 |

GTD 4/30/2024

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|---|---|---|---|---|---|---|---|---|---|---|
| D 22 13C4 PFHpA | | | | | | | | | | |
| 367.10 > 322.00 | 3.834 | 3.826 | 0.008 | 1.071 | 763577 | 2.06 | | 82.3 | 62185 | |
| 23 PFHpA | | | | | | | | | | |
| 363.10 > 319.00 | 3.824 | 3.834 | -0.010 | 0.998 | 86011 | 0.2693 | Target=3.34 | | 1003 | |
| 363.10 > 169.00 | 3.824 | 3.834 | -0.010 | 0.998 | 27337 | | 3.15(1.67-5.01) | | 1199 | |
| D 26 13C2-6:2FTS | | | | | | | | | | |
| 429.10 > 80.90 | 3.954 | 3.936 | 0.018 | 0.939 | 91416 | 4.62 | | 97.2 | 3009 | |
| 27 PFPeS | | | | | | | | | | |
| 349.10 > 79.90 | 3.954 | 3.955 | -0.001 | 0.939 | 16604 | 0.0524 | Target=2.51 | | 854 | |
| 349.10 > 98.90 | 3.954 | 3.955 | -0.001 | 0.939 | 7038 | | 2.36(1.25-3.76) | | 543 | |
| D 28 13C8 PFOA | | | | | | | | | | |
| 421.10 > 376.00 | 4.067 | 4.059 | 0.008 | 1.000 | 781560 | 2.50 | | 99.9 | 61515 | |
| * 30 13C4 PFOA | | | | | | | | | | |
| 417.10 > 172.00 | 4.067 | 4.059 | 0.008 | | 26504 | 2.50 | | | 2052 | |
| 29 PFOA | | | | | | | | | | |
| 413.00 > 369.00 | 4.067 | 4.068 | -0.001 | 1.000 | 296931 | 1.39 | Target=1.62 | | 197 | |
| 413.00 > 169.00 | 4.067 | 4.068 | -0.001 | 1.000 | 174321 | | 1.70(0.81-2.42) | | 265 | |
| * 33 18O2 PFHxS | | | | | | | | | | |
| 403.00 > 83.90 | 4.212 | 4.206 | 0.006 | | 1010046 | 2.37 | | | 84487 | |
| D 32 13C3 PFHxS | | | | | | | | | | |
| 402.10 > 79.90 | 4.212 | 4.206 | 0.006 | 1.000 | 898250 | 1.98 | | 83.6 | 56186 | |
| 34 PFHxS | | | | | | | | | | |
| 398.70 > 79.90 | 4.212 | 4.213 | -0.001 | 1.000 | 42638 | 0.1996 | Target=2.94 | | 63.0 | |
| 398.70 > 98.90 | 4.204 | 4.213 | -0.009 | 0.998 | 16955 | | 2.51(1.47-4.41) | | 66.7 | |
| * 36 13C5 PFNA | | | | | | | | | | |
| 468.00 > 423.00 | 4.301 | 4.293 | 0.008 | | 394707 | 1.25 | | | 31269 | |
| D 35 13C9 PFNA | | | | | | | | | | |
| 472.10 > 427.00 | 4.301 | 4.293 | 0.008 | 1.000 | 322837 | 1.05 | | 83.8 | 25548 | |
| 37 PFNA J, IR | | | | | | | | | | R |
| 463.00 > 419.00 | 4.301 | 4.301 | 0.0 | 1.000 | 16273 | 0.0872 | Target=3.99 | | 20.3 | R |
| 463.00 > 219.00 | 4.310 | 4.301 | 0.009 | 1.002 | 2693 | | 6.04(2.00-5.99) | | 10.0 | |
| D 38 13C2-8:2FTS | | | | | | | | | | |
| 529.10 > 80.90 | 4.408 | 4.402 | 0.006 | 1.047 | 38189 | 3.36 | | 70.2 | 3099 | |
| D 41 d3-NMeFOSAA | | | | | | | | | | |
| 573.20 > 419.00 | 4.516 | 4.510 | 0.006 | 0.945 | 508598 | 3.55 | | 70.9 | 42517 | |
| D 43 13C6 PFDA | | | | | | | | | | |
| 519.10 > 474.10 | 4.564 | 4.558 | 0.006 | 1.000 | 276660 | 1.03 | | 82.3 | 23429 | |
| * 44 13C2 PFDA | | | | | | | | | | |
| 515.10 > 470.10 | 4.564 | 4.558 | 0.006 | | 311792 | 1.25 | | | 26292 | |
| D 46 d5-NEtFOSAA | | | | | | | | | | |
| 589.20 > 419.00 | 4.656 | 4.643 | 0.013 | 0.974 | 372942 | 3.13 | | 62.6 | 30782 | |
| D 48 13C8 PFOS | | | | | | | | | | |
| 507.10 > 79.90 | 4.778 | 4.772 | 0.006 | 1.000 | 568960 | 1.88 | | 78.7 | 34313 | |
| * 49 13C4 PFOS | | | | | | | | | | |
| 502.80 > 79.90 | 4.778 | 4.772 | 0.006 | | 539936 | 2.39 | | | 43509 | |

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|---|---|---|---|---|---|---|---|---|---|---|
| D 22 13C4 PFHpA | | | | | | | | | | |
| 367.10 > 322.00 | 3.839 | 3.826 | 0.013 | 1.072 | 810434 | 2.22 | | 88.8 | 65949 | |
| 23 PFHpA | | | | | | | | | | |
| 363.10 > 319.00 | 3.830 | 3.834 | -0.004 | 0.998 | 85512 | 0.2523 | Target=3.34 | | 1102 | |
| 363.10 > 169.00 | 3.830 | 3.834 | -0.004 | 0.998 | 29791 | | 2.87(1.67-5.01) | | 1389 | |
| D 26 13C2-6:2FTS | | | | | | | | | | |
| 429.10 > 80.90 | 3.950 | 3.936 | 0.014 | 0.937 | 81565 | 4.23 | | 88.9 | 3200 | |
| 27 PFPeS | | | | | | | | | | |
| 349.10 > 79.90 | 3.960 | 3.955 | 0.005 | 0.939 | 12619 | 0.0375 | Target=2.51 | | 771 | |
| 349.10 > 98.90 | 3.950 | 3.955 | -0.005 | 0.937 | 7419 | | 1.70(1.25-3.76) | | 426 | |
| D 28 13C8 PFOA | | | | | | | | | | |
| 421.10 > 376.00 | 4.073 | 4.059 | 0.014 | 1.000 | 772106 | 2.06 | | 82.5 | 60538 | |
| * 30 13C4 PFOA | | | | | | | | | | |
| 417.10 > 172.00 | 4.073 | 4.059 | 0.014 | | 31702 | 2.50 | | | 2507 | |
| 29 PFOA | | | | | | | | | | |
| 413.00 > 369.00 | 4.073 | 4.068 | 0.005 | 1.000 | 285584 | 1.35 | Target=1.62 | | 257 | |
| 413.00 > 169.00 | 4.073 | 4.068 | 0.005 | 1.000 | 161112 | | 1.77(0.81-2.42) | | 244 | |
| * 33 18O2 PFHxS | | | | | | | | | | |
| 403.00 > 83.90 | 4.216 | 4.206 | 0.010 | | 984824 | 2.37 | | | 82332 | |
| D 32 13C3 PFHxS | | | | | | | | | | |
| 402.10 > 79.90 | 4.216 | 4.206 | 0.010 | 1.000 | 952305 | 2.15 | | 90.9 | 80637 | |
| 34 PFHxS | | | | | | | | | | |
| 398.70 > 79.90 | 4.216 | 4.213 | 0.003 | 1.000 | 42494 | 0.1876 | Target=2.94 | | 113 | |
| 398.70 > 98.90 | 4.216 | 4.213 | 0.003 | 1.000 | 12225 | | 3.48(1.47-4.41) | | 19.3 | |
| * 36 13C5 PFNA | | | | | | | | | | |
| 468.00 > 423.00 | 4.305 | 4.293 | 0.012 | | 377474 | 1.25 | | | 29959 | |
| D 35 13C9 PFNA | | | | | | | | | | |
| 472.10 > 427.00 | 4.305 | 4.293 | 0.012 | 1.000 | 304136 | 1.03 | | 82.6 | 24073 | |
| 37 PFNA J, IR | | | | | | | | | | RM |
| 463.00 > 419.00 | 4.305 | 4.301 | 0.004 | 1.000 | 13073 | 0.0743 | Target=3.99 | | 25.6 | RM |
| 463.00 > 219.00 | 4.314 | 4.301 | 0.013 | 1.002 | 1622 | | 8.06(2.00-5.99) | | 6.3 | M |
| D 38 13C2-8:2FTS | | | | | | | | | | |
| 529.10 > 80.90 | 4.412 | 4.402 | 0.010 | 1.046 | 45418 | 4.10 | | 85.6 | 3821 | |
| D 41 d3-NMeFOSAA | | | | | | | | | | |
| 573.20 > 419.00 | 4.520 | 4.510 | 0.010 | 0.945 | 516260 | 3.73 | | 74.7 | 43517 | |
| D 43 13C6 PFDA | | | | | | | | | | |
| 519.10 > 474.10 | 4.568 | 4.558 | 0.010 | 1.000 | 267873 | 0.9753 | | 78.0 | 22830 | |
| * 44 13C2 PFDA | | | | | | | | | | |
| 515.10 > 470.10 | 4.568 | 4.558 | 0.010 | | 318470 | 1.25 | | | 27188 | |
| D 46 d5-NEtFOSAA | | | | | | | | | | |
| 589.20 > 419.00 | 4.651 | 4.643 | 0.008 | 0.973 | 381996 | 3.33 | | 66.5 | 31625 | |
| D 48 13C8 PFOS | | | | | | | | | | |
| 507.10 > 79.90 | 4.782 | 4.772 | 0.010 | 1.000 | 578575 | 1.98 | | 83.0 | 34780 | |
| * 49 13C4 PFOS | | | | | | | | | | |
| 502.80 > 79.90 | 4.782 | 4.772 | 0.010 | | 520632 | 2.39 | | | 41804 | |

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|---|---|---|---|---|---|---|---|---|---|---|
| D 19 13C3 HFPO-DA | | | | | | | | | | |
| 286.90 > 168.90 | 3.690 | 3.678 | 0.012 | 1.033 | 1318647 | 7.33 | | 73.3 | 79951 | |
| 73 TUDCA | | | | | | | | | | |
| 498.10 > 80.00 | 3.736 | 3.706 | 0.030 | | 3644 | NR | | | 115 | |
| 74 TCDCA | | | | | | | | | | |
| 498.20 > 80.00 | 3.756 | 3.774 | -0.018 | | 4002 | NR | | | 118 | |
| D 22 13C4 PFHpA | | | | | | | | | | |
| 367.10 > 322.00 | 3.837 | 3.826 | 0.011 | 1.074 | 852229 | 2.23 | | 89.3 | 68718 | |
| 23 PFHpA | | | | | | | | | | |
| 363.10 > 319.00 | 3.828 | 3.834 | -0.006 | 0.998 | 1581375 | 4.44 | Target=3.34 | | 6188 | |
| 363.10 > 169.00 | 3.828 | 3.834 | -0.006 | 0.998 | 442233 | | 3.58(1.67-5.01) | | 13264 | |
| D 26 13C2-6:2FTS | | | | | | | | | | |
| 429.10 > 80.90 | 3.948 | 3.936 | 0.012 | 0.938 | 144763 | 6.60 | | 139 | 2875 | |
| 27 PFPeS J, IR | | | | | | | | | | RM |
| 349.10 > 79.90 | 4.042 | 3.955 | 0.087 | 0.961 | 1406781 | 3.16 | Target=2.51 | | 408 | RM |
| 349.10 > 98.90 | 3.948 | 3.955 | -0.007 | 0.938 | 34923 | | 40.28(1.25-3.76) | | 425 | |
| D 28 13C8 PFOA | | | | | | | | | | |
| 421.10 > 376.00 | 4.071 | 4.059 | 0.012 | 1.000 | 1008642 | 1.85 | | 74.1 | 78958 | |
| * 30 13C4 PFOA | | | | | | | | | | |
| 417.10 > 172.00 | 4.071 | 4.059 | 0.012 | | 46097 | 2.50 | | | 3652 | |
| 29 PFOA | | | | | | | | | | |
| 413.00 > 369.00 | 4.071 | 4.068 | 0.003 | 1.000 | 1729782 | 6.25 | Target=1.62 | | 471 | |
| 413.00 > 169.00 | 4.061 | 4.068 | -0.007 | 0.998 | 917541 | | 1.89(0.81-2.42) | | 950 | |
| * 33 18O2 PFHxS | | | | | | | | | | |
| 403.00 > 83.90 | 4.207 | 4.206 | 0.001 | | 1118912 | 2.37 | | | 69946 | |
| D 32 13C3 PFHxS | | | | | | | | | | |
| 402.10 > 79.90 | 4.207 | 4.206 | 0.001 | 1.000 | 1260612 | 2.51 | | 106 | 4677 | |
| 34 PFHxS | | | | | | | | | | |
| 398.70 > 79.90 | 4.215 | 4.213 | 0.002 | 1.002 | 425530 | 1.42 | Target=2.94 | | 22.8 | |
| 398.70 > 98.90 | 4.207 | 4.213 | -0.006 | 1.000 | 118249 | | 3.60(1.47-4.41) | | 285 | |
| * 36 13C5 PFNA | | | | | | | | | | |
| 468.00 > 423.00 | 4.303 | 4.293 | 0.010 | | 524857 | 1.25 | | | 41556 | |
| D 35 13C9 PFNA | | | | | | | | | | |
| 472.10 > 427.00 | 4.303 | 4.293 | 0.010 | 1.000 | 451074 | 1.10 | | 88.1 | 35718 | |
| 37 PFNA | | | | | | | | | | |
| 463.00 > 419.00 | 4.303 | 4.301 | 0.002 | 1.000 | 555448 | 2.13 | Target=3.99 | | 346 | |
| 463.00 > 219.00 | 4.303 | 4.301 | 0.002 | 1.000 | 111815 | | 4.97(2.00-5.99) | | 189 | |
| D 38 13C2-8:2FTS | | | | | | | | | | |
| 529.10 > 80.90 | 4.411 | 4.402 | 0.009 | 1.048 | 92062 | 7.31 | | 153 | 5644 | |
| 40 PFHpS | | | | | | | | | | M |
| 449.00 > 79.90 | 4.461 | 4.468 | -0.007 | 0.933 | 94282 | 0.2370 | Target=5.36 | | 200 | M |
| 449.00 > 98.80 | 4.461 | 4.468 | -0.007 | 0.933 | 20798 | | 4.53(2.68-8.04) | | 1244 | |
| D 41 d3-NMeFOSAA | | | | | | | | | | |
| 573.20 > 419.00 | 4.511 | 4.510 | 0.001 | 0.944 | 631153 | 3.76 | | 75.3 | 52848 | |
| 42 NMeFOSAA | | | | | | | | | | |
| 570.10 > 419.00 | 4.519 | 4.517 | 0.002 | 1.002 | 19171 | 0.1654 | Target=2.08 | | 6003 | |
| 570.10 > 483.00 | 4.519 | 4.517 | 0.002 | 1.002 | 8543 | | 2.24(1.04-3.12) | | 6.2 | |

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|---|---|---|---|---|---|---|---|---|---|---|
| D 22 13C4 PFHpA | | | | | | | | | | |
| 367.10 > 322.00 | 3.828 | 3.826 | 0.002 | 1.071 | 747220 | 2.19 | | 87.5 | 59949 | |
| 23 PFHpA | | | | | | | | | | |
| 363.10 > 319.00 | 3.828 | 3.834 | -0.006 | 1.000 | 202129 | 0.6467 | Target=3.34 | | 3312 | |
| 363.10 > 169.00 | 3.828 | 3.834 | -0.006 | 1.000 | 57778 | | 3.50(1.67-5.01) | | 2735 | |
| D 26 13C2-6:2FTS | | | | | | | | | | |
| 429.10 > 80.90 | 3.948 | 3.936 | 0.012 | 0.938 | 77119 | 4.11 | | 86.5 | 2617 | |
| 27 PFPeS | | | | | | | | | | |
| 349.10 > 79.90 | 3.948 | 3.955 | -0.007 | 0.938 | 11039 | 0.0361 | Target=2.51 | | 554 | |
| 349.10 > 98.90 | 3.948 | 3.955 | -0.007 | 0.938 | 2990 | | 3.69(1.25-3.76) | | 189 | |
| D 28 13C8 PFOA | | | | | | | | | | |
| 421.10 > 376.00 | 4.071 | 4.059 | 0.012 | 1.000 | 724674 | 2.42 | | 96.7 | 56212 | |
| * 30 13C4 PFOA | | | | | | | | | | |
| 417.10 > 172.00 | 4.071 | 4.059 | 0.012 | | 25388 | 2.50 | | | 1966 | |
| 29 PFOA | | | | | | | | | | |
| 413.00 > 369.00 | 4.071 | 4.068 | 0.003 | 1.000 | 448201 | 2.26 | Target=1.62 | | 375 | |
| 413.00 > 169.00 | 4.061 | 4.068 | -0.007 | 0.998 | 237485 | | 1.89(0.81-2.42) | | 349 | |
| * 33 18O2 PFHxS | | | | | | | | | | |
| 403.00 > 83.90 | 4.207 | 4.206 | 0.001 | | 957294 | 2.37 | | | 80145 | |
| D 32 13C3 PFHxS | | | | | | | | | | |
| 402.10 > 79.90 | 4.207 | 4.206 | 0.001 | 1.000 | 867104 | 2.01 | | 85.2 | 54416 | |
| 34 PFHxS | | | | | | | | | | |
| 398.70 > 79.90 | 4.215 | 4.213 | 0.002 | 1.002 | 53787 | 0.2608 | Target=2.94 | | 76.5 | |
| 398.70 > 98.90 | 4.207 | 4.213 | -0.006 | 1.000 | 15026 | | 3.58(1.47-4.41) | | 72.7 | |
| * 36 13C5 PFNA | | | | | | | | | | |
| 468.00 > 423.00 | 4.294 | 4.293 | 0.001 | | 373233 | 1.25 | | | 29156 | |
| D 35 13C9 PFNA | | | | | | | | | | |
| 472.10 > 427.00 | 4.303 | 4.293 | 0.010 | 1.002 | 321724 | 1.10 | | 88.4 | 25380 | |
| D 38 13C2-8:2FTS | | | | | | | | | | |
| 529.10 > 80.90 | 4.402 | 4.402 | 0.0 | 1.046 | 43543 | 4.04 | | 84.4 | 3596 | |
| D 41 d3-NMeFOSAA | | | | | | | | | | |
| 573.20 > 419.00 | 4.511 | 4.510 | 0.001 | 0.945 | 569360 | 4.15 | | 82.9 | 47702 | |
| D 43 13C6 PFDA | | | | | | | | | | |
| 519.10 > 474.10 | 4.559 | 4.558 | 0.001 | 1.000 | 290026 | 1.12 | | 89.5 | 24393 | |
| * 44 13C2 PFDA | | | | | | | | | | |
| 515.10 > 470.10 | 4.559 | 4.558 | 0.001 | | 300546 | 1.25 | | | 25204 | |
| D 46 d5-NEtFOSAA | | | | | | | | | | |
| 589.20 > 419.00 | 4.643 | 4.643 | 0.0 | 0.973 | 452083 | 3.96 | | 79.3 | 37954 | |
| D 48 13C8 PFOS | | | | | | | | | | |
| 507.10 > 79.90 | 4.773 | 4.772 | 0.001 | 1.000 | 614307 | 2.12 | | 88.7 | 37033 | |
| * 49 13C4 PFOS | | | | | | | | | | |
| 502.80 > 79.90 | 4.773 | 4.772 | 0.001 | | 517208 | 2.39 | | | 41867 | |
| 50 PFOS J, IR | | | | | | | | | | RM |
| 498.90 > 79.90 | 4.650 | 4.787 | -0.137 | 0.974 | 58608 | 0.2369 | Target=3.89 | | 49.0 | RM |
| 498.90 > 98.80 | 4.773 | 4.787 | -0.014 | 1.000 | 9059 | | 6.47(1.95-5.84) | | 16.4 | |
| D 51 13C7 PFUnA | | | | | | | | | | |
| 570.00 > 525.10 | 4.901 | 4.901 | 0.0 | 1.075 | 173772 | 1.04 | | 83.3 | 13778 | |

FORM VI
PFAS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins Lancaster Laboratories Environment Testing, LLC  Job No.: 620-17311-1  Analy Batch No.: 483008

SDG No.:

Instrument ID: 29347  GC Column: Gemini C18  ID: 3(mm)  Heated Purge: (Y/N) N

Calibration Start Date: 03/13/2024 13:56  Calibration End Date: 03/13/2024 15:20  Calibration ID: 59608

| ANALYTE | RRF | | | | | CURVE TYPE | COEFFICIENT | | | # | MIN RRF | %RSD /RSE | # | MAX %RSD /RSE | R^2 OR COD | # | MIN R^2 OR COD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LVL 1<br>LVL 6 | LVL 2<br>LVL 7 | LVL 3 | LVL 4 | LVL 5 | | B | M1 | M2 | | | | | | | | |
| Perfluoroheptanoic acid | 1.0774<br>1.1687 | 0.9438<br>1.1429 | 0.9677 | 0.9604 | 1.0590 | AveI<br>D | | 1.0457 | | | | 8.7 | | 20.0 | | | |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | 2.8247<br>2.5502 | 2.9614<br>+++++ | 2.8608 | 2.7451 | 3.0872 | AveI<br>D | | 2.8382 | | | | 6.5 | | 20.0 | | | |
| 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2) | 3.0348<br>4.3144 | 4.7458<br>3.2590 | 3.7707 | 3.9633 | 3.5750 | AveI<br>D | | 3.8090 | | | | 15.6 | | 20.0 | | | |
| Perfluoropentanesulfonic acid | 0.8250<br>0.8833 | 0.7950<br>0.9121 | 0.8560 | 0.7910 | 0.7826 | AveI<br>D | | 0.8350 | | | | 6.0 | | 20.0 | | | |
| Perfluorooctanoic acid | 0.6774<br>0.7245 | 0.6455<br>0.8013 | 0.6732 | 0.6608 | 0.6162 | AveI<br>D | | 0.6856 | | | | 8.9 | | 20.0 | | | |
| 7:3 FTCA | 0.0487<br>0.0624 | 0.0613<br>0.0661 | 0.0606 | 0.0553 | 0.0604 | AveI<br>D | | 0.0593 | | | | 9.5 | | 20.0 | | | |
| Perfluorohexanesulfonic acid | 0.5692<br>0.5725 | 0.5448<br>0.6222 | 0.5575 | 0.5433 | 0.5282 | AveI<br>D | | 0.5625 | | | | 5.4 | | 20.0 | | | |
| Perfluorononanoic acid | 0.6742<br>0.7459 | 0.7692<br>0.8295 | 0.7129 | 0.6322 | 0.6965 | AveI<br>D | | 0.7229 | | | | 9.0 | | 20.0 | | | |
| 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2) | 5.2038<br>4.2524 | 4.6157<br>+++++ | 4.7715 | 3.9115 | 3.7299 | AveI<br>D | | 4.4142 | | | | 12.6 | | 20.0 | | | |
| Perfluoroheptanesulfonic acid | 1.1788<br>1.2494 | 1.3076<br>1.3326 | 1.2643 | 1.1347 | 1.1722 | AveI<br>D | | 1.2342 | | | | 6.0 | | 20.0 | | | |
| NMeFOSAA | 0.8026<br>0.9875 | 1.0090<br>0.9849 | 0.9163 | 0.8464 | 0.8812 | AveI<br>D | | 0.9183 | | | | 8.6 | | 20.0 | | | |
| Perfluorodecanoic acid | 0.6982<br>0.8347 | 0.8276<br>0.8890 | 0.8969 | 0.7433 | 0.8084 | AveI<br>D | | 0.8140 | | | | 8.9 | | 20.0 | | | |
| NEtFOSAA | 0.8110<br>0.7797 | 0.8626<br>0.8352 | 0.8158 | 0.7046 | 0.7594 | AveI<br>D | | 0.7955 | | | | 6.6 | | 20.0 | | | |
| Perfluorooctanesulfonic acid | 1.0657<br>0.8982 | 0.9965<br>1.0201 | 0.9863 | 0.8899 | 0.8801 | AveI<br>D | | 0.9624 | | | | 7.6 | | 20.0 | | | |
| Perfluoroundecanoic acid | 1.0049<br>1.0513 | 1.0152<br>1.0812 | 1.1164 | 0.9267 | 1.0070 | AveI<br>D | | 1.0290 | | | | 6.0 | | 20.0 | | | |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 2.6322<br>2.5849 | 2.7964<br>2.4556 | 2.7166 | 2.5802 | 2.7715 | AveI<br>D | | 2.6482 | | | | 4.6 | | 20.0 | | | |
| Perfluorononanesulfonic acid | 0.5510<br>0.6677 | 0.6598<br>0.7522 | 0.6761 | 0.6037 | 0.6250 | AveI<br>D | | 0.6479 | | | | 9.8 | | 20.0 | | | |

GTD 4/30/2024

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type. RSD is calculated for Ave curve types. RSE is used for all other types.

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|---|---|---|---|---|---|---|---|---|---|---|
| 15 PFHxA | | | | | | | | | | |
| 313.00 > 269.00 | 3.579 | 3.573 | 0.006 | 1.000 | 547145 | 2.40 | Target=11.64 | 96.1 | 17799 | |
| 313.00 > 118.90 | 3.579 | 3.573 | 0.006 | 1.000 | 47315 | | 11.56(5.82-17.46) | 96.1 | 4211 | |
| D 13 13C5 PFHxA | | | | | | | | | | |
| 318.00 > 273.00 | 3.579 | 3.573 | 0.006 | 1.000 | 758630 | 2.86 | | 114 | 65149 | |
| * 14 13C2 PFHxA | | | | | | | | | | |
| 315.10 > 270.00 | 3.579 | 3.573 | 0.006 | | 588374 | 2.50 | | | 50406 | |
| 16 5:3 FTCA | | | | | | | | | | |
| 341.00 > 237.10 | 3.623 | 3.625 | -0.002 | 1.012 | 1662937 | 61.7 | Target=2.83 | 98.8 | 81490 | |
| 341.00 > 217.00 | 3.623 | 3.625 | -0.002 | 1.012 | 575684 | | 2.89(1.41-4.24) | 98.8 | 35564 | |
| D 17 13C3 PFBS | | | | | | | | | | |
| 302.10 > 79.90 | 3.678 | 3.671 | 0.007 | 0.871 | 989348 | 2.63 | | 113 | 79761 | |
| 18 PFBS | | | | | | | | | | |
| 298.70 > 79.90 | 3.678 | 3.671 | 0.007 | 1.000 | 481092 | 2.06 | Target=2.81 | 93.0 | 38027 | |
| 298.70 > 98.80 | 3.669 | 3.671 | -0.002 | 0.997 | 171926 | | 2.80(1.40-4.21) | 93.0 | 14054 | |
| D 19 13C3 HFPO-DA | | | | | | | | | | |
| 286.90 > 168.90 | 3.696 | 3.689 | 0.007 | 1.033 | 1528007 | 11.4 | | 114 | 123291 | |
| 20 HFPO-DA | | | | | | | | | | |
| 284.90 > 168.90 | 3.696 | 3.699 | -0.003 | 1.000 | 1481733 | 9.91 | Target=19.25 | 99.1 | 6096 | |
| 284.90 > 184.90 | 3.687 | 3.699 | -0.012 | 0.998 | 73276 | | 20.22(9.62-28.87) | 99.1 | 5873 | |
| 21 PFEESA | | | | | | | | | | |
| 314.80 > 134.90 | 3.817 | 3.819 | -0.002 | 1.066 | 3480187 | 4.16 | Target=12.69 | 93.6 | 283487 | |
| 314.80 > 82.90 | 3.817 | 3.819 | -0.002 | 1.066 | 276976 | | 12.56(6.34-19.03) | 93.6 | 11421 | |
| D 22 13C4 PFHpA | | | | | | | | | | |
| 367.10 > 322.00 | 3.844 | 3.837 | 0.007 | 1.074 | 827279 | 2.90 | | 116 | 67364 | |
| 23 PFHpA | | | | | | | | | | |
| 363.10 > 319.00 | 3.835 | 3.837 | -0.002 | 0.998 | 794481 | 2.30 | Target=3.34 | 91.8 | 38839 | |
| 363.10 > 169.00 | 3.835 | 3.837 | -0.002 | 0.998 | 244512 | | 3.25(1.67-5.01) | 91.8 | 14902 | |
| 24 ADONA | | | | | | | | | | |
| 376.90 > 250.90 | 3.927 | 3.929 | -0.002 | 1.062 | 3951260 | 9.11 | Target=17.94 | 96.7 | 238700 | |
| 376.90 > 84.80 | 3.927 | 3.929 | -0.002 | 1.062 | 213275 | | 18.53(8.97-26.91) | 96.7 | 17174 | |
| D 26 13C2-6:2FTS | | | | | | | | | | |
| 429.10 > 80.90 | 3.955 | 3.948 | 0.007 | 0.937 | 87538 | 5.42 | | 114 | 7002 | |
| 25 6:2FTS | | | | | | | | | | |
| 427.10 > 407.00 | 3.946 | 3.948 | -0.002 | 0.998 | 692425 | 9.86 | Target=1.59 | 104 | 54491 | |
| 427.10 > 80.90 | 3.946 | 3.948 | -0.002 | 0.998 | 405863 | | 1.71(0.79-2.38) | 104 | 31976 | |
| 27 PFPeS | | | | | | | | | | |
| 349.10 > 79.90 | 3.965 | 3.967 | -0.002 | 0.939 | 754005 | 2.22 | Target=2.51 | 94.7 | 44645 | |
| 349.10 > 98.90 | 3.955 | 3.967 | -0.012 | 0.937 | 301477 | | 2.50(1.25-3.76) | 94.7 | 23693 | |
| * 30 13C4 PFOA | | | | | | | | | | |
| 417.10 > 172.00 | 4.078 | 4.071 | 0.007 | | 24795 | 2.50 | | | 1921 | |
| D 28 13C8 PFOA | | | | | | | | | | |
| 421.10 > 376.00 | 4.078 | 4.071 | 0.007 | 1.000 | 801739 | 2.74 | | 110 | 63118 | |
| 29 PFOA | | | | | | | | | | |
| 413.00 > 369.00 | 4.078 | 4.081 | -0.003 | 1.000 | 529779 | 2.41 | Target=1.62 | 96.4 | 442 | |
| 413.00 > 169.00 | 4.078 | 4.081 | -0.003 | 1.000 | 311697 | | 1.70(0.81-2.42) | 96.4 | 154 | |


GTD 4/30/2024

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|---|---|---|---|---|---|---|---|---|---|---|
| D 22 13C4 PFHpA | | | | | | | | | | |
| 367.10 > 322.00 | 3.834 | 3.826 | 0.008 | 1.071 | 763577 | 2.06 | | 82.3 | 62185 | |
| 23 PFHpA | | | | | | | | | | |
| 363.10 > 319.00 | 3.824 | 3.834 | -0.010 | 0.998 | 86011 | 0.2693 | Target=3.34 | | 1003 | |
| 363.10 > 169.00 | 3.824 | 3.834 | -0.010 | 0.998 | 27337 | | 3.15(1.67-5.01) | | 1199 | |
| D 26 13C2-6:2FTS | | | | | | | | | | |
| 429.10 > 80.90 | 3.954 | 3.936 | 0.018 | 0.939 | 91416 | 4.62 | | 97.2 | 3009 | |
| 27 PFPeS | | | | | | | | | | |
| 349.10 > 79.90 | 3.954 | 3.955 | -0.001 | 0.939 | 16604 | 0.0524 | Target=2.51 | | 854 | |
| 349.10 > 98.90 | 3.954 | 3.955 | -0.001 | 0.939 | 7038 | | 2.36(1.25-3.76) | | 543 | |
| D 28 13C8 PFOA | | | | | | | | | | |
| 421.10 > 376.00 | 4.067 | 4.059 | 0.008 | 1.000 | 781560 | 2.50 | | 99.9 | 61515 | |
| * 30 13C4 PFOA | | | | | | | | | | |
| 417.10 > 172.00 | 4.067 | 4.059 | 0.008 | | 26504 | 2.50 | | | 2052 | |
| 29 PFOA | | | | | | | | | | |
| 413.00 > 369.00 | 4.067 | 4.068 | -0.001 | 1.000 | 296931 | 1.39 | Target=1.62 | | 197 | |
| 413.00 > 169.00 | 4.067 | 4.068 | -0.001 | 1.000 | 174321 | | 1.70(0.81-2.42) | | 265 | |
| * 33 18O2 PFHxS | | | | | | | | | | |
| 403.00 > 83.90 | 4.212 | 4.206 | 0.006 | | 1010046 | 2.37 | | | 84487 | |
| D 32 13C3 PFHxS | | | | | | | | | | |
| 402.10 > 79.90 | 4.212 | 4.206 | 0.006 | 1.000 | 898250 | 1.98 | | 83.6 | 56186 | |
| 34 PFHxS | | | | | | | | | | |
| 398.70 > 79.90 | 4.212 | 4.213 | -0.001 | 1.000 | 42638 | 0.1996 | Target=2.94 | | 63.0 | |
| 398.70 > 98.90 | 4.204 | 4.213 | -0.009 | 0.998 | 16955 | | 2.51(1.47-4.41) | | 66.7 | |
| * 36 13C5 PFNA | | | | | | | | | | |
| 468.00 > 423.00 | 4.301 | 4.293 | 0.008 | | 394707 | 1.25 | | | 31269 | |
| D 35 13C9 PFNA | | | | | | | | | | |
| 472.10 > 427.00 | 4.301 | 4.293 | 0.008 | 1.000 | 322837 | 1.05 | | 83.8 | 25548 | |
| 37 PFNA | | | | | | | | | | R |
| 463.00 > 419.00 | 4.301 | 4.301 | 0.0 | 1.000 | 16273 | 0.0872 | Target=3.99 | | 20.3 | R |
| 463.00 > 219.00 | 4.310 | 4.301 | 0.009 | 1.002 | 2693 | | 6.04(2.00-5.99) | | 10.0 | |
| D 38 13C2-8:2FTS | | | | | | | | | | |
| 529.10 > 80.90 | 4.408 | 4.402 | 0.006 | 1.047 | 38189 | 3.36 | | 70.2 | 3099 | |
| D 41 d3-NMeFOSAA | | | | | | | | | | |
| 573.20 > 419.00 | 4.516 | 4.510 | 0.006 | 0.945 | 508598 | 3.55 | | 70.9 | 42517 | |
| D 43 13C6 PFDA | | | | | | | | | | |
| 519.10 > 474.10 | 4.564 | 4.558 | 0.006 | 1.000 | 276660 | 1.03 | | 82.3 | 23429 | |
| * 44 13C2 PFDA | | | | | | | | | | |
| 515.10 > 470.10 | 4.564 | 4.558 | 0.006 | | 311792 | 1.25 | | | 26292 | |
| D 46 d5-NEtFOSAA | | | | | | | | | | |
| 589.20 > 419.00 | 4.656 | 4.643 | 0.013 | 0.974 | 372942 | 3.13 | | 62.6 | 30782 | |
| D 48 13C8 PFOS | | | | | | | | | | |
| 507.10 > 79.90 | 4.778 | 4.772 | 0.006 | 1.000 | 568960 | 1.88 | | 78.7 | 34313 | |
| * 49 13C4 PFOS | | | | | | | | | | |
| 502.80 > 79.90 | 4.778 | 4.772 | 0.006 | | 539936 | 2.39 | | | 43509 | |

DUSR Calculations Sheet
PFAS

**Sample ID:** 360175-DW006
**TC:** Perfluorooctanoic acid (PFOA)
**Val File Result for TC:** 13.6 ng/l

## Ical Calc

| | |
|---|---|
| **Area TC** | 529779 |
| **Area IS** | 801739 |
| **Conc TC** | 2.5 |
| **Conc IS** | 2.5 |
| **RRF =** | 0.660787 |

| | |
|---|---|
| **1** | 0.6774 |
| **2** | 0.6455 |
| **3** | 0.6732 |
| **4** | 0.6608 |
| **5** | 0.6162 |
| **6** | 0.7245 |
| **7** | 0.8013 |
| **8** | |
| **9** | |
| **10** | |
| **Avg RRF =** | 0.68555714 |
| **Std Dev =** | 0.06077293 |
| **%RSD =** | 8.86475107 |

## Sample Calc

| | |
|---|---|
| **Area TC** | 296931 |
| **Area IS** | 781560 |
| **Conc IS** | 2.5 |
| **Avg RRF** | 0.685557 |
| **Conc (ng/mL) TC =** | 1.385446 |

| | |
|---|---|
| **DF** | 1 |
| **Sample Volume** | 510.5 |
| **final vol** | 5 |
| **Conc (ng/L)** | 2.71389986 |
| **Final Conc (ng/L)** | 13.5694993 |

Notes:
Green = matched reported value
Red = did not match reported value

GTD 4/30/2024

# APPENDIX G

# REMEDIAL ALTERNATIVE COST DETAILS

**Appendix G**
**Detailed Cost Backup for All Alternatives**

| Cost Item No. | Applicable Alternative | Description | Quantity | Unit | Unit Cost | Total Cost | Notes |
|---|---|---|---|---|---|---|---|
| | | **PRE-DESIGN INVESTIGATIONS** | | | | | |
| ***1A*** | ***Alt 2*** | ***Pre-Design Investigation and Baseline Sampling for Alternative 2*** | | | | ***$ 65,152*** | |
| | | **To Support Excavation Design** | | | | | **For design of 4-foot deep excavation (to meet background)** |
| | | Property Survey | 1 | LS | $ 3,500 | $ 3,500 | Property survey also for institutional control - Labor and equipment |
| | | Utility Survey | 1 | LS | $ 3,500 | $ 3,500 | One Day |
| | | Structural Analysis of Buildings near excavations | 2 | Days | $ 3,000 | $ 6,000 | 2 people, 2 days (labor day rates includes travel expenses) |
| | | Soil Samples for Disposal Characterization | | | | | |
| | | Labor for sampling | 1 | Days | $ 1,500 | $ 1,500 | One person via hand auger. Two composite samples, one from top two feet and one from 2-4 feet (5-point composites). |
| | | Lab Data | 2 | Ea | $ 1,410 | $ 2,820 | Full pre-disposal parameters (TCLP Metals, VOCs, PCBs, SVOCs, PFAS, pH, Ignitability, reactivity) |
| | | **Baseline Sampling Round** | | | | | **Assume Install 4 permanent monitoring wells** |
| | | **Well Installation** | | | | | |
| | | Geoprobe mob/demob | 1 | LS | $ 1,500 | $ 1,500 | |
| | | Geoprobe Labor and Per Diem | 2 | Days | $ 2,500 | $ 5,000 | |
| | | Well Construction - 1.5" Sch 80 CPVC Riser | 40 | ft | $ 4.28 | $ 171 | |
| | | Well Construction - 1.5" Sch 80 CPVC Screen | 40 | ft | $ 3.03 | $ 121 | |
| | | Well Cap - 1.5" | 4 | each | $ 13.60 | $ 54 | |
| | | Grout | 40 | bag | $ 12.08 | $ 483 | |
| | | Bentonite | 4 | bag | $ 23.05 | $ 92 | |
| | | Sand | 40 | bag | $ 7.88 | $ 315 | |
| | | Well Finish (Flush Mount with Concrete base) | 4 | each | $ 750 | $ 3,000 | |
| | | Field Technician | 2 | Days | $ 1,500 | $ 3,000 | |
| | | **Regenesis** | | | | | |
| | | Flux Tracer / Mapping Test | 1 | LS | $ 25,000 | $ 25,000 | Includes on-site test in existing wells and lab/bench testing to support the design. |
| | | **Groundwater Sampling** | | | | | |
| | | Field Technician | 1 | Days | $ 3,000 | $ 3,000 | 2 people, 1 day |
| | | GW sampling Equipment | 1 | Days | $ 250 | $ 250 | $125 per set-up per day. |
| | | Lab Analysis: | | | | | New wells, 2 sumps, dup for VOC and PFAS |
| | | VOCs / Groundwater | 7 | Ea | $ 85 | $ 595 | |
| | | PFAS / Groundwater | 7 | Ea | $ 450 | $ 3,150 | |
| | | MNA Parameters | 6 | Ea | $ 350 | $ 2,100 | |
| ***1B*** | ***Alt 3*** | ***Pre-Design Investigation and Baseline Sampling for Alternative 3*** | | | | ***$ 35,682*** | |
| | | **To Support Excavation Design** | | | | | **No Structural Analysis, assume average depth of excavation 2 ft (to meet residential SCO), excavation will vary, need more samples** |
| | | Property Survey | 1 | LS | $ 3,500 | $ 3,500 | Property survey also for institutional control |
| | | Utility Survey | 1 | LS | $ 3,500 | $ 3,500 | One Day |
| | | Soil Samples for full Delineation and Disposal Characterization | | | | | |
| | | Labor for sampling | 1 | Days | $ 1,500 | $ 1,500 | One person via hand auger. One composite sample, one from top two feet (5-point composites). Plus 5 additional locations for PFAS Only. |
| | | PFAS / Soil | 5 | Ea | $ 510 | $ 2,550 | |
| | | Lab Data | 2 | Ea | $ 900 | $ 1,800 | Full pre-disposal parameters (TCLP Metals, VOCs, PCBs, SVOCs,pH, Ignitability, reactivity) - no PFAS, can use discrete samples. |
| | | **Well Installation** | | | | **$ 13,737** | **Same as Alternative 2** |
| | | **Baseline Sampling Round** | | | | **$ 9,095** | **Same as Alternative 2 - Although remedy will not include PFAS groundwater, remediating the PFAS soil may result in long term GW changes.** |
| ***1C*** | ***Alt 4*** | ***Pre-Design Investigation and Baseline Sampling for Alternative 4*** | | | | ***$ 32,232*** | |
| | | **To Support Minor Excavation and Capping** | | | | | **No structural analysis not required for 1 ft excavation** |
| | | Property Survey | 1 | LS | $ 3,500 | $ 3,500 | Property survey also for institutional control |
| | | Utility Survey | 1 | LS | $ 3,500 | $ 3,500 | |
| | | Soil Samples for Disposal Characterization | | | | | |
| | | Labor for sampling | 1 | Days | $ 1,500 | $ 1,500 | One person via hand auger. One composite sample, one from top foot (5-point composite). |
| | | Lab Data | 1 | Ea | $ 900 | $ 900 | Full pre-disposal parameters (TCLP Metals, VOCs, PCBs, SVOCs, PFAS, pH, Ignitability, reactivity) |
| | | **Well Installation** | | | | **$ 13,737** | **Same as Alternative 2** |
| | | **Baseline Sampling Round** | | | | **$ 9,095** | **Same as Alternative 2 - Although remedy will not include PFAS groundwater, Capping PFAS soil may result in long term GW changes.** |
| ***1D*** | ***Alt 5*** | ***Pre-Design Investigation for Alternative 5*** | | | | ***$ 26,332*** | |
| | | **Property Survey** | 1 | LS | $ 3,500 | $ 3,500 | Property survey for institutional control |
| | | **Well Installation** | | | | **$ 13,737** | Same as Alternative 2 |
| | | **Baseline Sampling Round** | | | | **$ 9,095** | Same as Alternative 2 |
| ***1E*** | ***Alt 6*** | ***Baseline Sampling for Alternative 6*** | | | | ***$ 22,832*** | |
| | | **Well Installation** | | | | **$ 13,737** | Same as Alternative 2 |
| | | **Baseline Sampling Round** | | | | **$ 9,095** | Same as Alternative 2 |

**Appendix G**
**Detailed Cost Backup for All Alternatives**

| Cost Item No. | Applicable Alternative | Description | Quantity | Unit | Unit Cost | Total Cost | Notes |
|---|---|---|---|---|---|---|---|
| **FULL SCALE IMPLEMENTATION FOR ALL ALTERNATIVES** | | | | | | | |
| ***2A*** | ***Alt 2*** | ***Implement PFAS Soil Excavation (4-feet)*** | | | | ***$ 301,258*** | |
| | | **Work Plans, Schedules and Permits** | | | | | **Contractor required submittals** |
| | | Detailed Construction Plan | 1 | LS | $ 7,500 | $ 7,500 | |
| | | Health & Safety Plan | 1 | LS | $ 5,000 | $ 5,000 | |
| | | QA/QC Plan | 1 | LS | $ 5,000 | $ 5,000 | |
| | | **Mobilization, Temporary Facilities and Controls** | | | | | **Not much room for temporary facilities - no field office** |
| | | Temporary Storage Trailer 16' x 8' | 1 | MO | $ 2,000 | $ 2,000 | |
| | | Portable Toilets | 1 | MO | $ 500 | $ 500 | |
| | | Install silt fence | 200 | LF | $ 5 | $ 1,000 | |
| | | Rented chain link, 6' high, to 1,000' | 200 | LF | $ 25 | $ 5,000 | |
| | | Decontamination Area | 1 | LS | $ 4,300 | $ 4,300 | |
| | | Traffic control Operator | 1 | LS | $ 10,000 | $ 10,000 | |
| | | **Excavation and Offsite Disposal** | | | | | Assume direct load / no stockpiling, excavate to 4 feet or top of water (whichever is shallower), no excavation dewatering. |
| | | Excavation Support | 1 | LS | $ 20,000 | $ 20,000 | Only excavating up to 4 feet, might need minor support (trench box), adjacent to building. |
| | | Excavate and Load | 257 | CY | $ 25 | $ 6,415 | |
| | | Transport and Dispose | 385 | Ton | $ 375 | $ 144,333 | |
| | | Documentation Soil Sampling | | | | | Documentation samples - one per 25 X 25 ft |
| | | Labor, Lab Coordination/Courier, Validation | 3 | EA | $ 500 | $ 1,386 | |
| | | Lab Costs for PFAS | 6 | EA | $ 510 | $ 3,060 | |
| | | **Backfill and Restore** | | | | | |
| | | Backfill and Compact Common Fill | 225 | CY | $ 75 | $ 16,839 | Bottom 3.5 feet |
| | | Compacted Road Base | 12 | CY | $ 100 | $ 1,172 | ~3 inches on existing paved areas |
| | | Asphalt on Existing Pave Area | 1266 | SF | $ 20 | $ 25,320 | Re-pave existing paved areas (3-inch thick) |
| | | Topsoil and seed | 9 | CY | $ 55 | $ 475 | Existing yard area |
| | | **Construction Oversight** | | | | | |
| | | Labor & Per Diem | 5 | Week | $ 7,500 | $ 37,500 | |
| | | **Payment and Performance Bonds** | | | | $ 4,459 | Assume 5% of cost (everything above except Transportation and Disposal and Construction Oversight). |
| ***2B*** | ***Alt 3a and 3b*** | ***Implement PFAS Soil Excavation (Average 2 feet)*** | | | | ***$ 186,245*** | |
| | | **Work Plans, Schedules and Permits** | | | | ***$ 17,500*** | **Same as Alternative 2** |
| | | **Mobilization, Temporary Facilities and Controls** | | | | $ 22,800 | **Same as Alternative 2** |
| | | **Excavation and Offsite Disposal** | | | | | **Assume direct load / no stockpiling, excavate to average of 2 feet to meet residential standards.** |
| | | Excavate and Load | 128 | CY | $ 25 | $ 3,207 | |
| | | Transport and Dispose | 192 | Ton | $ 375 | $ 72,167 | |
| | | Documentation Soil Sampling | | | | | Documentation samples - one per 25 X 25 ft |
| | | Labor, Lab Coordination/Courier, Validation | 3 | EA | $ 500 | $ 1,386 | Same as Alternative 2 - Same Area, just shallower |
| | | Lab Costs for PFAS | 6 | EA | $ 510 | $ 3,060 | |
| | | **Backfill and Compaction** | | | | | |
| | | Backfill and Compact Common Fill | 96 | CY | $ 75 | $ 7,217 | Bottom 1.5 ft |
| | | Compacted Road Base | 12 | CY | $ 100 | $ 1,172 | ~3 inches on existing paved areas |
| | | Asphalt on Existing Pave Area | 1266 | SF | $ 20 | $ 25,320 | Re-pave existing paved areas (3-inch thick) |
| | | Topsoil and seed | 9 | CY | $ 55 | $ 475 | Existing yard area |
| | | **Construction Oversight** | | | | | |
| | | Labor & Per Diem | 4 | Week | $ 7,500 | $ 30,000 | |
| | | **Payment and Performance Bonds** | | | | $ 1,942 | Assume 5% of cost (everything above except Transportation and Disposal and Construction Oversight). |
| ***2C*** | ***Alt. 4a and 4b*** | ***Implement PFAS Minor Soil Excavation and Capping*** | | | | ***$ 80,615*** | |
| | | **Work Plans, Schedules and Permits** | | | | ***$ 17,500*** | Same as Alternative 2 & 3 |
| | | **Mobilization, Temporary Facilities and Controls** | | | | $ 22,800 | Same as Alternative 2 & 3 |
| | | **Excavation and Offsite Disposal** | | | | | Leave Existing Paved Road in-place. Assume direct load / no stockpiling, only Excavating 1 foot |
| | | Excavate and Load | 17 | CY | $ 25 | $ 431 | |
| | | Transport and Dispose | 26 | Ton | $ 375 | $ 9,708 | |
| | | **Backfill and Compaction** | | | | | |
| | | Backfill and Compact Crushed Stone Subbase | 9 | CY | $ 100 | $ 863 | 6-inches |
| | | Pave with 6" thick asphalt | 466 | SF | $ 25 | $ 11,650 | Although thickness of existing pavement is unknown, assume 6-inch for new/impermeable portion. |
| | | **Construction Oversight** | | | | | |
| | | Labor & Per Diem | 2 | Week | $ 7,500 | $ 15,000 | |
| | | **Payment and Performance Bonds** | | | | $ 2,662 | Assume 5% of cost (everything above except Transportation and Disposal and Construction Oversight). |

**Appendix G**
**Detailed Cost Backup for All Alternatives**

| Cost Item No. | Applicable Alternative | Description | Quantity | Unit | Unit Cost | Total Cost | Notes |
|---|---|---|---|---|---|---|---|
| ***2D*** | ***Alt. 2*** | ***Implement In-Situ Sorption (PFAS in GW) and ISCR/Bio (PCE in GW) - On and off-site locations*** | | | | ***$ 1,366,895*** | |
| | | **General Site Services** | | | | | Items that are not included in Regenesis Proposal |
| | | Permit / Access to Water Hydrant | 1 | LS | $ 2,500 | $ 2,500 | |
| | | Private Utility Locate | 1 | LS | $ 4,000 | $ 4,000 | |
| | | Provide Forklift to support injections | 2 | Month | $ 4,000 | $ 8,000 | To move totes/pumps around and unload from trucks |
| | | Access Agreements | 1 | LS | $ 3,000 | $ 3,000 | |
| | | Temporary Storage Trailer 16' x 8' | 2 | Month | $ 2,000 | $ 4,000 | |
| | | Field Monitoring Equipment | 2 | Month | $ 800 | $ 1,600 | Water level indicator, Downhole YSI |
| | | Porta Potty | 2 | Month | $ 500 | $ 1,000 | |
| | | On-Site for Above including product deliveries | 2 | Week | $ 7,500 | $ 15,000 | |
| | | **Injection - Regenesis Quote** | | | | | Regenesis Quote includes Drilling via geoprobe, provides range in costs, use high-end since will likely take more time than estimated. |
| | | Dutcher Street PRB for CVOC | 1 | LS | $ 273,798 | $ 273,798 | Regenesis Quote & Calcs for Larger Area - Includes Aquifix, S-MZVI, BDI injections in 29 injection points for a 160 ft PRB. Estimated 8 days. |
| | | Dutcher Street PFAS PRB | 1 | LS | $ 183,604 | $ 183,604 | Regenesis Quote & Calcs for Larger Area - Includes Plume Stop injections in 36 injection points for a 90 ft PRB. Estimated 6 days. |
| | | Upcharge for Rotosonic | 14 | Day | $ 2,500 | $ 35,000 | Assume PRBs will need rotosonic rig instead of geoprobe that was included in Regenesis quote. Rotosonic Twice the cost of Geoprobe. |
| | | Rotosonic Waste Disposal | 4 | Drum | $ 150 | $ 600 | Assume 65 boreholes 2" diameter, 20 ft depth |
| | | Bld #49 CVOC Plume | 1 | LS | $ 166,000 | $ 166,000 | See Regenesis Quote - Includes Aquifix, S-MZVI, BDI injections in 26 injection points for a 2,585 SF area. Estimated 4 days. |
| | | CVOC/PFAS Plume near DP-03 | 1 | LS | $ 63,000 | $ 63,000 | See Regenesis Quote - Includes Aquifix, S-MZVI, BDI, Plume Stop injections in 26 injection points for a 300 SF area. Estimated 1 day. |
| | | **Construction Oversight** | | | | | |
| | | Labor & Per Diem | 7 | Week | $ 7,500 | $ 52,500 | Regenesis estimate 19 days, double not likely to be able to inject as quickly as they indicate. |
| | | Lab Costs for Soil Samples (VOCs) | 10 | EA | $ 120 | $ 1,200 | 2 samples (shallow and deep) from 5 locations - As Baseline prior to injections. |
| | | Lab Costs for GW Samples (VOCs) | 5 | EA | $ 85 | $ 425 | 1 sample from 5 locations - As Baseline prior to injections. |
| | | **Groundwater Sampling (6 locations, ~3 months after first injection)** | | | | | |
| | | Labor and Per Diem | 4 | Day | $ 3,000 | $ 12,000 | 2 people, 2 days |
| | | Monitoring well sampling equipment | 4 | Day | $ 250 | $ 1,000 | $125 per day per set-up |
| | | VOCs / Groundwater | 7 | EA | $ 85 | $ 595 | 6 samples plus one duplicate per event |
| | | PFAS / Groundwater | 7 | EA | $ 450 | $ 3,150 | 6 samples plus one duplicate per event |
| | | **Regenesis - 2nd injection - VOCs only** | | | | | Based on prior experience, assume a second injection (~6 months later) will be required. |
| | | Dutcher Street PRB for CVOC | 1 | LS | $ 273,798 | $ 273,798 | Regenesis Quote & Calcs for Larger Area - Includes Aquifix, S-MZVI, BDI injections in 29 injection points for a 160 ft PRB. Estimated 8 days. |
| | | Upcharge for Rotosonic | 8 | Day | $ 2,500 | $ 20,000 | Assume PRBs will need rotosonic rig instead of geoprobe that was included in Regenesis quote. Additional $1,000 / day. |
| | | Bld #49 CVOC Plume | 1 | LS | $ 166,000 | $ 166,000 | See Regenesis Quote - Includes Aquifix, S-MZVI, BDI injections in 26 injection points for a 2,585 SF area. Estimated 4 days. |
| | | CVOC Plume near DP-03 | 1 | LS | $ 36,000 | $ 36,000 | See Regenesis Quote - Includes Aquifix, S-MZVI, BDI injections in 6 injection points for a 300 SF area. Estimated 1 day. |
| | | **Construction Oversight** | | | | | |
| | | Labor & Per Diem | 5 | Week | $ 7,500 | $ 37,500 | Regenesis estimate 13 days, double not likely to be able to inject as quickly as they indicate. |
| | | Lab Costs for Soil Samples (VOCs) | 10 | EA | $ 120 | $ 1,200 | 2 samples (shallow and deep) from 5 locations - To compare to baseline. |
| | | Lab Costs for GW Samples (VOCs) | 5 | EA | $ 85 | $ 425 | 1 sample from 5 locations - To compare to baseline. |
| ***2E*** | ***Alt 3a, Alt 4a*** | ***Implement In-Situ Chemical Oxidation (PCE) - On-Site only (49 & 53 Main St)*** | | | | ***$ 232,625*** | |
| | | **General Site Services** | | | | | Items that are not included in Regenesis Proposal |
| | | Permit / Access to Water Hydrant | 1 | LS | $ 2,500 | $ 2,500 | |
| | | Private Utility Locate | 1 | LS | $ 4,000 | $ 4,000 | |
| | | Provide Forklift to support injections | 1 | Month | $ 4,000 | $ 4,000 | To move totes/pumps around and unload from trucks |
| | | Access Agreements | 1 | LS | $ 3,000 | $ 3,000 | |
| | | Field Monitoring Equipment | 1 | Month | $ 800 | $ 800 | Water level indicator, Downhole YSI |
| | | Porta Potty | 1 | Month | $ 500 | $ 500 | |
| | | On-Site for Above including product deliveries | 1 | Week | $ 7,500 | $ 7,500 | |
| | | **Injection Services and Materials - Activated Persulfate (VOCs) - Round 1** | | | | | **Evonik Recommended 1 round, total 10,100 gallons. After internal review, add 20% to Quantity, conduct in two rounds (~66% / 33% per round)** |
| | | Geoprobe mob/demob | 1 | LS | $ 1,500 | $ 1,500 | |
| | | Geoprobe Labor and Per Diem | 12 | Day | $ 2,500 | $ 30,000 | Drillers labor and equipment |
| | | Mixing Equipment - Totes, Pumps, Piping | 1 | LS | $ 15,000 | $ 15,000 | |
| | | 12 Injection points | 12 | Day | $ 4,000 | $ 48,000 | Inject ~4,000 gallons into up to 12 locations, ~350 gallons each, assume 1 day per location |
| | | **Construction Oversight - Round 1** | | | | | |
| | | Labor & Per Diem | 12 | Day | $ 1,500 | $ 18,000 | |
| | | Lab Costs for Soil Samples (VOCs) | 10 | EA | $ 120 | $ 1,200 | 2 samples (shallow and deep) from 5 locations - As Baseline prior to injections. |
| | | Lab Costs for GW Samples (VOCs) | 5 | EA | $ 85 | $ 425 | 1 sample from 5 locations - As Baseline prior to injections. |
| | | **Purchase Injection Amendments - Round 1** | | | | | **Evonik's Quote was for amendments only, no labor, tax or delivery** |
| | | Klozur® SP | 7,000 | lbs | $ 1.58 | $ 11,060 | Based on Quote from Evonik plus 20% X 66% |
| | | 25% NaOH - Klozur® Activator | 11100 | lbs | $ 0.45 | $ 4,995 | Based on Quote from Evonik plus 20% X 66% |
| | | Product tax and shipping | 25% | % | $ 16,055 | $ 4,014 | Based on Quote from Evonik plus 20% X 66% |

**Appendix G**
**Detailed Cost Backup for All Alternatives**

| Cost Item No. | Applicable Alternative | Description | Quantity | Unit | Unit Cost | Total Cost | Notes |
|---|---|---|---|---|---|---|---|
| | | **Injection Services and Materials - Activated Persulfate (VOCs) - Round 2** | | | | | **Second Round - Assume Same as first.** |
| | | Geoprobe mob/demob | 1 | LS | $ 1,500 | $ 1,500 | |
| | | Geoprobe Labor and Per Diem | 6 | Day | $ 2,500 | $ 15,000 | |
| | | Mixing Equipment - Totes, Pumps, Piping | 1 | LS | $ 15,000 | $ 15,000 | |
| | | 12 Injection points | 6 | Day | $ 4,000 | $ 24,000 | |
| | | **Construction Oversight - Round 2** | | | | | |
| | | Labor & Per Diem | 6 | Day | $ 1,500 | $ 9,000 | |
| | | Lab Costs for Soil Samples (VOCs) | 10 | EA | $ 120 | $ 1,200 | 2 samples (shallow and deep) from 5 locations - To compare to baseline. |
| | | Lab Costs for GW Samples (VOCs) | 5 | EA | $ 85 | $ 425 | 1 sample from 5 locations - To compare to baseline. |
| | | **Purchase Injection Amendments - Round 2** | | | | | |
| | | Klozur® SP | 3,500 | lbs | $ 1.58 | $ 5,530 | Based on Quote from Evonik plus 20% X 33% |
| | | 25% NaOH - Klozur® Activator | 5500 | lbs | $ 0.45 | $ 2,475 | Based on Quote from Evonik plus 20% X 33% |
| | | Product tax and shipping | 0.25 | % | $ 8,005 | $ 2,001 | Based on Quote from Evonik plus 20% X 33% |
| ***2F*** | ***Alt 3b, Alt 4b*** | ***Implement In-Situ Bioaugmentation - On-Site only (49 & 53 Main St)*** | | | | ***$ 111,985*** | |
| | | **General Site Services** | | | | | |
| | | Permit / Access to Water Hydrant | 1 | LS | $ 2,500 | $ 2,500 | |
| | | Private Utility Locate | 1 | LS | $ 4,000 | $ 4,000 | |
| | | Provide Forklift to support injections | 1 | Month | $ 4,000 | $ 4,000 | To move totes/pumps around and unload from trucks |
| | | Access Agreements | 1 | LS | $ 3,000 | $ 3,000 | |
| | | Field Monitoring Equipment | 1 | Month | $ 800 | $ 800 | Water level indicator, Downhole YSI |
| | | Porta Potty | 1 | Month | $ 500 | $ 500 | |
| | | On-Site for Above including product deliveries | 1 | Week | $ 7,500 | $ 7,500 | |
| | | **Injection Services and Materials - Activated Persulfate (VOCs) - Round 1** | | | | | **Evonik recommended 1 round to inject 2,012 gallons. After internal review, quantity if justified, but conduct in two rounds.** |
| | | Geoprobe mob/demob | 1 | LS | $ 1,500 | $ 1,500 | |
| | | Geoprobe Labor and Per Diem | 4 | Days | $ 2,500 | $ 10,000 | Drillers labor and equipment |
| | | Mixing Equipment - Totes, Pumps, Piping | 1 | LS | $ 15,000 | $ 15,000 | |
| | | Inject into existing wells - Labor Drill Rig | 4 | Days | $ 4,000 | $ 16,000 | Inject ~2,000 gallons into 12 locations, ~170 gallons each, assume 2 locations per day |
| | | **Purchase Injection Amendments - Round 1** | | | | | |
| | | ELS® Microemulsion | 1,100 | lbs | $ 1.39 | $ 1,529 | Based on Quote from Evonik (~66%) |
| | | Additional pH buffer (KHCO3) | 33 | lbs | $ 3.70 | $ 122 | Based on Quote from Evonik (~66%) |
| | | DHC Inoculum | 10 | L | $ 120 | $ 1,200 | Based on Quote from Evonik (~66%) |
| | | Product tax and shipping | 25% | % | $ 2,851 | $ 713 | Assumed tax and shipping |
| | | **Construction Oversight - Round 1** | | | | | |
| | | Labor & Per Diem | 4 | days | $ 1,500 | $ 6,000 | |
| | | Lab Costs for Soil Samples (VOCs) | 10 | EA | $ 120 | $ 1,200 | 2 samples (shallow and deep) from 5 locations - As Baseline prior to injections. |
| | | Lab Costs for GW Samples (VOCs) | 5 | EA | $ 85 | $ 425 | 1 sample from 5 locations - As Baseline prior to injections. |
| | | **Injection Services and Materials - Activated Persulfate (VOCs) - Round 2** | | | | | **Second Round Same as the first** |
| | | Geoprobe mob/demob | 1 | LS | $ 1,500 | $ 1,500 | |
| | | Geoprobe Labor and Per Diem | 2 | Days | $ 2,500 | $ 5,000 | |
| | | Mixing Equipment - Totes, Pumps, Piping | 1 | LS | $ 15,000 | $ 15,000 | |
| | | Inject into existing wells - Labor Drill Rig | 2 | Days | $ 4,000 | $ 8,000 | |
| | | **Purchase Injection Amendments - Round 2** | | | | | |
| | | ELS® Microemulsion | 600 | lbs | $ 1.39 | $ 834 | Based on Quote from Evonik (~33%) |
| | | Additional pH buffer (KHCO3) | 17 | lbs | $ 3.70 | $ 63 | Based on Quote from Evonik (~33%) |
| | | DHC Inoculum | 5 | L | $ 120 | $ 600 | Based on Quote from Evonik (~33%) |
| | | Product tax and shipping | 25% | % | $ 1,497 | $ 374 | |
| | | **Construction Oversight - Round 2** | | | | | |
| | | Labor & Per Diem | 2 | days | $ 1,500 | $ 3,000 | |
| | | Lab Costs for Soil Samples (VOCs) | 10 | EA | $ 120 | $ 1,200 | 2 samples (shallow and deep) from 5 locations - To compare to baseline. |
| | | Lab Costs for GW Samples (VOCs) | 5 | EA | $ 85 | $ 425 | 1 sample from 5 locations - To compare to baseline. |
| ***2G*** | ***Alt 5*** | ***Implement ISCO (Beneath 49 & 53 Main Streeet), Bio-Augmentation (Back of properties)*** | | | | ***$ 258,588*** | |
| | | **General Site Services** | | | | | Items that are not included in Regenesis Proposal |
| | | Permit / Access to Water Hydrant | 1 | LS | $ 2,500 | $ 2,500 | |
| | | Private Utility Locate | 1 | LS | $ 4,000 | $ 4,000 | |
| | | Provide Forklift to support injections | 1 | Month | $ 4,000 | $ 4,000 | To move totes/pumps around and unload from trucks |
| | | Access Agreements | 1 | LS | $ 3,000 | $ 3,000 | |
| | | Field Monitoring Equipment | 1 | Month | $ 800 | $ 800 | Water level indicator, Downhole YSI |
| | | Porta Potty | 1 | Month | $ 500 | $ 500 | |
| | | On-Site for Above including product deliveries | 1 | Week | $ 7,500 | $ 7,500 | |
| | | **Injection Services and Materials - Activated Persulfate (VOCs) - Round 1** | | | | | **Evonik Recommended 1 round, total 10,100 gallons. After internal review, add 20% to Quantity, conduct in two rounds (~66% / 33% per round)** |
| | | Geoprobe mob/demob | 1 | LS | $ 1,500 | $ 1,500 | |

**Appendix G**
**Detailed Cost Backup for All Alternatives**

| Cost Item No. | Applicable Alternative | Description | Quantity | Unit | Unit Cost | Total Cost | Notes |
|---|---|---|---|---|---|---|---|
| | | Geoprobe Labor and Per Diem | 14 | Day | $ 2,500 | $ 35,000 | Drillers labor and equipment |
| | | Mixing Equipment - Totes, Pumps, Piping | 1 | LS | $ 15,000 | $ 15,000 | |
| | | | | | | | Basements (ISCO): Inject ~4,000 gallons into up to 12 locations, ~350 gallons each, assume 1 day per location |
| | | 16 Injection points | 14 | Day | $ 4,000 | $ 56,000 | Back of Properties (BIO): 4 Locations, small quantities, 2 days total |
| | | **Construction Oversight - Round 1** | | | | | |
| | | Labor & Per Diem | 14 | Day | $ 1,500 | $ 21,000 | |
| | | Lab Costs for Soil Samples (VOCs) | 10 | EA | $ 120 | $ 1,200 | 2 samples (shallow and deep) from 5 locations, beneath building - As Baseline prior to injections. |
| | | Lab Costs for GW Samples (VOCs) | 6 | EA | $ 85 | $ 510 | 1 sample from 6 locations (include one back of property) - As Baseline prior to injections. |
| | | **Purchase ISCO Amendments - Round 1** | | | | | **Evonik's Quote was for amendments only, no labor, tax or delivery** |
| | | Klozur® SP | 7,000 | lbs | $ 1.58 | $ 11,060 | Based on Quote from Evonik plus 20% X 66% |
| | | 25% NaOH - Klozur® Activator | 11,100 | lbs | $ 0.45 | $ 4,995 | Based on Quote from Evonik plus 20% X 66% |
| | | Product tax and shipping | 25% | % | $ 16,055 | $ 4,014 | Based on Quote from Evonik plus 20% X 66% |
| | | **Purchase Bio Amendments - Round 1** | | | | | |
| | | ELS® Microemulsion | 400 | lbs | $ 1.39 | $ 556 | Based on Quote from Evonik - 1/3 the amount that would be needed beneath building (1/3 3B and 4B) |
| | | Additional pH buffer (KHCO3) | 11 | lbs | $ 3.70 | $ 40 | Based on Quote from Evonik - 1/3 the amount that would be needed beneath building (1/3 3B and 4B) |
| | | DHC Inoculum | 3 | L | $ 120 | $ 360 | Based on Quote from Evonik - 1/3 the amount that would be needed beneath building (1/3 3B and 4B) |
| | | Product tax and shipping | 25% | % | $ 956 | $ 239 | Assumed tax and shipping |
| | | **Injection Services and Materials - Activated Persulfate (VOCs) - Round 2** | | | | | **Second Round - Assume Same as first.** |
| | | Geoprobe mob/demob | 1 | LS | $ 1,500 | $ 1,500 | |
| | | Geoprobe Labor and Per Diem | 7 | Day | $ 2,500 | $ 17,500 | |
| | | Mixing Equipment - Totes, Pumps, Piping | 1 | LS | $ 15,000 | $ 15,000 | |
| | | | | | | | Basements (ISCO): Inject ~2,000 gallons into up to 12 locations, ~175 gallons each, assume 0.5 day per location |
| | | 16 Injection points | 7 | Day | $ 4,000 | $ 28,000 | Back of Properties (BIO): 4 Locations, small quantities, 1 days total |
| | | **Construction Oversight - Round 2** | | | | | |
| | | Labor & Per Diem | 7 | Day | $ 1,500 | $ 10,500 | |
| | | Lab Costs for Soil Samples (VOCs) | 10 | EA | $ 120 | $ 1,200 | 2 samples (shallow and deep) from 5 locations, beneath the building - To compare to baseline. |
| | | Lab Costs for GW Samples (VOCs) | 6 | EA | $ 85 | $ 510 | 1 sample from 6 locations (include one back of property) - To compare to baseline. |
| | | **Purchase Injection Amendments - Round 2** | | | | | |
| | | Klozur® SP | 3,500 | lbs | $ 1.58 | $ 5,530 | Based on Quote from Evonik plus 20% X 33% |
| | | 25% NaOH - Klozur® Activator | 5,500 | lbs | $ 0.45 | $ 2,475 | Based on Quote from Evonik plus 20% X 33% |
| | | Product tax and shipping | 25% | % | $ 8,005 | $ 2,001 | Based on Quote from Evonik plus 20% X 33% |
| | | **Purchase Bio Amendments - Round 2** | | | | | |
| | | ELS® Microemulsion | 200 | lbs | $ 1.39 | $ 278 | Half as much as first round |
| | | Additional pH buffer (KHCO3) | 5 | lbs | $ 3.70 | $ 20 | Half as much as first round |
| | | DHC Inoculum | 1.5 | L | $ 120 | $ 180 | Half as much as first round |
| | | Product tax and shipping | 25% | % | $ 478 | $ 120 | Assumed tax and shipping |
| ***2H*** | ***Alt 3, 4, 5, 6*** | ***Institute ICs/EC & Site Management Plan*** | | | | ***$ 25,000*** | |
| | | Site Management Plan | 1 | LS | $ 25,000 | $ 25,000 | Contents of SMP will change depending on Alternative. |

**Appendix G**
**Detailed Cost Backup for All Alternatives**

| Cost Item No. | Applicable Alternative | Description | Quantity | Unit | Unit Cost | Total Cost | Notes |
|---|---|---|---|---|---|---|---|
| **PERIODIC AND ANNUAL COSTS FOR ALL ALTERNATIVES** | | | | | | | |
| ***3A*** | ***Alt 2*** | ***LTM & Reporting - Alt 2 (Years 1 through 5)*** | | | | ***$ 43,690*** | |
| | | **Groundwater Sampling (6 locations, every 6 months)** | | | | | |
| | | Labor and Per Diem | 8 | Days | $ 3,000 | $ 24,000 | 2 people, 2 days, two events |
| | | Monitoring well sampling equipment | 4 | days | $ 250 | $ 1,000 | $125 per pay per set-up |
| | | VOCs / Groundwater | 14 | EA | $ 85 | $ 1,190 | 6 samples plus one duplicate per event |
| | | PFAS / Groundwater | 14 | EA | $ 450 | $ 6,300 | 6 samples plus one duplicate per event |
| | | MNA Parameters | 4 | EA | $ 300 | $ 1,200 | 4 samples, once per year. Assume since this is a final remedy with monitoring ending after 5 years, collect MNA as well to make a case that remaining impacts will attenuate. |
| | | Annual Report | 1 | LS | $ 10,000 | $ 10,000 | |
| ***3B*** | ***Alt 3a, Alt 4a, 5*** | ***LTM & Reporting - Alt 3a, 4a & 5 (Years 1 through 5)*** | | | | ***$ 42,490*** | |
| | | **Groundwater Sampling (6 locations, every 6 months)** | | | | | |
| | | Labor and Per Diem | 8 | Days | $ 3,000 | $ 24,000 | 2 people, 2 days, two events |
| | | Monitoring well sampling equipment | 4 | days | $ 250 | $ 1,000 | $125 per pay per set-up |
| | | VOCs / Groundwater | 14 | EA | $ 85 | $ 1,190 | 6 samples plus one duplicate per event |
| | | PFAS / Groundwater | 14 | EA | $ 450 | $ 6,300 | 6 samples plus one duplicate per event |
| | | Annual Report | 1 | LS | $ 10,000 | $ 10,000 | |
| ***3C*** | ***Alt 3a, Alt 4a, 5*** | ***LTM & Reporting - Alt 3a, 4a, 5 (Years 6 through 30)*** | | | | ***$ 26,245*** | |
| | | **Groundwater Sampling (6 wells, every 12 months)** | | | | | |
| | | Labor and Per Diem | 4 | Days | $ 3,000 | $ 12,000 | 2 people, 2 days, 1 event |
| | | Monitoring well sampling equipment | 2 | days | $ 250 | $ 500 | $125 per pay per set-up |
| | | VOCs / Groundwater | 7 | EA | $ 85 | $ 595 | 6 samples plus one duplicate |
| | | PFAS / Groundwater | 7 | EA | $ 450 | $ 3,150 | 6 samples plus one duplicate |
| | | Annual Report | 1 | LS | $ 10,000 | $ 10,000 | |
| ***3D*** | ***Alt 3b, 4b, and 6*** | ***LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 1 through 5)*** | | | | ***$ 43,890*** | |
| | | **Groundwater Sampling (6 locations, every 6 months)** | | | | | |
| | | Labor and Per Diem | 8 | Days | $ 3,000 | $ 24,000 | 2 people, 2 days, two events |
| | | Monitoring well sampling equipment | 4 | days | $ 250 | $ 1,000 | $125 per pay per set-up |
| | | VOCs / Groundwater | 14 | EA | $ 85 | $ 1,190 | 6 samples plus one duplicate per event |
| | | PFAS / Groundwater | 14 | EA | $ 450 | $ 6,300 | 6 samples plus one duplicate per event |
| | | MNA Parameters | 4 | EA | $ 350 | $ 1,400 | 4 samples, once per year |
| | | Annual Report | 1 | LS | $ 10,000 | $ 10,000 | |
| ***3E*** | ***Alt 3b, 4b and 6*** | ***LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 6 through 30)*** | | | | ***$ 27,645*** | |
| | | **Groundwater Sampling (6 wells, every 12 months)** | | | | | |
| | | Labor and Per Diem | 4 | Days | $ 3,000 | $ 12,000 | 2 people, 2 days, 1 event |
| | | Monitoring well sampling equipment | 2 | days | $ 250 | $ 500 | $125 per pay per set-up |
| | | VOCs / Groundwater | 7 | EA | $ 85 | $ 595 | 6 samples plus one duplicate |
| | | PFAS / Groundwater | 7 | EA | $ 450 | $ 3,150 | 6 samples plus one duplicate |
| | | MNA Parameters | 4 | EA | $ 350 | $ 1,400 | 4 samples, once per year |
| | | Annual Report | 1 | LS | $ 10,000 | $ 10,000 | |
| ***3F*** | ***Alt 3, 4, 5, 6*** | ***Long Term IC/EC Inspections, Certifications and Reporting*** | | | | ***$ 4,500*** | |
| | | **Annual Inspection - ICs/ECs** | | | | | |
| | | Labor and Per Diem | 1 | Days | $ 1,500 | $ 1,500 | Inspect engineering controls |
| | | Annual Report/Certifications | 1 | LS | $ 3,000 | $ 3,000 | |

**Appendix G**
**Quantity Calculations - Sheet 1 of 2**

**Alternative 2**
**Soil Excavation to Background for PFAS impacted soil:**

| | | | |
|---|---|---|---|
| Total Area of Excavation (existing paved and yard) | 1732 | SF | |
| Area of existing pavement | 1266 | SF | |
| Area of Existing yard | 466 | SF | |
| Depth | 4 | ft | |
| Volume (CF) | 6928 | CF | |
| Volume (CY) | 257 | CY | |
| Weight (Tons) | 385 | Tons | Assume 1.5 tons / cy |
| Documentation soil samples | 3 | | 25' X 25' grid |
| Backfill - Regular (CF) | 6062 | CF | |
| Backfill - Regular (CY) | 225 | CY | |
| Backfill / Compact Subbase | 12 | CY | |
| Place 3" Asphalt (existing asphalt area) | 1266 | SF | |
| Topsoil and Seed | 9 | CY | |



**Alternative 3**
**Soil Excavation to Residential Standards PFAS impacted soil:**

| | | | |
|---|---|---|---|
| Assume Average depth of 2 feet throughout: | | | |
| Total Area of Excavation (existing paved and yard) | 1732 | SF | |
| Area of existing pavement | 1266 | SF | |
| Area of Existing yard | 466 | SF | |
| Depth | 2 | ft | |
| Volume (CF) | 3464 | CF | |
| Volume (CY) | 128 | CY | |
| Weight (Tons) | 192 | Tons | Assume 1.5 tons / cy |
| Documentation soil samples | 3 | | 25' X 25' grid |
| Backfill - Regular (CF) | 2598 | CF | |
| Backfill - Regular (CY) | 96 | CY | |
| Backfill / Compact Subbase | 12 | CY | |
| Place 3" Asphalt (existing asphalt area) | 1266 | SF | |
| Topsoil and Seed | 9 | CY | |

**Alternative 4**
**Impermeable cover for PFAS impacted soil:**

| | | |
|---|---|---|
| Existing Asphalt is part of impermeable cover system: | | |
| Total Area to Pave (existing yard) | 466 | SF |
| Remove top foot (CF) | 466 | CF |
| Remove top foot (CY) | 17 | CY |
| Weight of removed soil (tons) | 26 | Tons |
| Backfill Compact Subbase | 9 | CY |
| Place 6 inches asphalt | 466 | SF |

**Appendix G**
**Quantity Calculations - Sheet 2 of 2**

**Alternative 2 - On and Off-Property In-Situ Sorption, Enhanced Bioremediation & In-Situ Chemical Reduction**

**Original Regensis Quote:**

| Remediation Area | PRB Length | Grid Area | PlumeStop | AquiFix | S-MZVI | BDI | Direct-Push Inj. | Injection Volume | Project Duration | Cost range | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vertical Thickness 8 ft | feet | sq. feet | lbs | lbs | lbs | Liters | Points | gallons | days | $ | | |
| N. Dutcher St CVOC PRB | 45 | 585 | | 3200 | 700 | 18 | 8 | 2965 | 2 | $ 64,000 | - | $ 77,000 |
| N. Dutcher St PFAS PRB | 75 | 975 | 7600 | | | | 30 | 8279 | 5 | $ 127,000 | - | $ 153,000 |
| Bldg #49 CVOC Plume Core | | 2585 | | 8000 | 2000 | 18 | 26 | 7982 | 4 | $ 138,000 | - | $ 166,000 |
| No. CVOC core area DP-03 | | 300 | | 800 | 200 | 18 | 6 | 1936 | 1 | $ 30,000 | - | $ 36,000 |
| No. CVOC/PFAS area DP-03 | | 300 | 1200 | 400 | 200 | 18 | 8 | 2937 | 2 | $ 52,000 | - | $ 63,000 |
| **Total** | **120** | **4745** | **8800** | **12400** | **3100** | **72** | **78** | **24099** | **14** | | | |

**Revised Regenesis Quote (Increased PRB length):**

| Remediation Area | PRB Length | Grid Area | Plume Stop | Aquifix | S-MZVI | BDI | Direct-Push Inj. | Injection Volume | Project Duration | Cost Range | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vertical Thickness 8 ft | feet | sq. feet | lbs | lbs | lbs | Liters | Points | gallons | days | $ | | |
| N. Dutcher St CVOC PRB | 160 | 2080 | | 11600 | 2489 | 64 | 29 | 10543 | 8 | $ 227,572 | - | $ 273,798 |
| N. Dutcher St PFAS PRB | 90 | | 9120 | | | | 36 | 9935 | 6 | $ 152,403 | - | $ 183,604 |
| Bldg #49 CVOC Plume Core | | 2585 | | 8000 | 2000 | 18 | 26 | 7982 | 4 | $ 138,000 | - | $ 166,000 |
| No. CVOC core area DP-03 | | 300 | | 800 | 200 | 18 | 6 | 1936 | 1 | $ 30,000 | - | $ 36,000 |
| No. CVOC/PFAS area DP-03 | | 300 | 1200 | 400 | 200 | 18 | 8 | 2937 | 2 | $ 52,000 | - | $ 63,000 |
| **Total** | **250** | **5265** | **10320** | **20800** | **4889** | **118** | **105** | **33333** | **21** | | | |

**Side-by-Side comparison:**

| Remediation Area | PRB Length | PRB Length | Grid Area | Grid Area | PlumeStop | Plume Stop | AquiFix | Aquifix | S-MZVI | | S-MZVI | BDI | BDI | Direct-Push Inj. | Direct-Push Inj. | Injection Volume | Injection Volume | Project Duration | Project Duration | Cost range | | | Cost Range | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vertical Thickness 8 ft | feet | feet | sq. feet | sq. feet | lbs | lbs | lbs | lbs | lbs | | lbs | Liters | Liters | Points | Points | gallons | gallons | days | days | $ | | | $ | | |
| N. Dutcher St CVOC PRB | 45 | 160 | 585 | 2080 | | | 3200 | 11600 | 700 | | 2489 | 18 | 64 | 8 | 29 | 2965 | 10543 | 2 | 8 | $ 64,000 | - | $ 77,000 | $227,572 | - | $ 273,798 |
| N. Dutcher St PFAS PRB | 75 | 90 | 975 | | 7600 | 9120 | | | | | | | | 30 | 36 | 8279 | 9935 | 5 | 6 | $127,000 | - | $153,000 | $152,403 | - | $ 183,604 |
| Bldg #49 CVOC Plume Core | | | 2585 | | | | 8000 | | 2000 | | | 18 | | 26 | | 7982 | | 4 | | $138,000 | - | $166,000 | $138,000 | - | $ 166,000 |
| No. CVOC core area DP-03 | | | 300 | | | | 800 | | 200 | | | 18 | | 6 | | 1936 | | 1 | | $ 30,000 | - | $ 36,000 | $ 30,000 | - | $ 36,000 |
| No. CVOC/PFAS area DP-03 | | | 300 | | 1200 | | 400 | | 200 | | | 18 | | 8 | | 2937 | | 2 | | $ 52,000 | - | $ 63,000 | $ 52,000 | - | $ 63,000 |
| **Total** | **120** | | **4745** | | **8800** | **10320** | **12400** | **20800** | **3100** | | **4889** | **72** | **118** | **78** | **105** | **24099** | **33333** | **14** | **21** | | | | | | |

**Rotosonic Drilling Waste**

| | |
|---|---|
| diameter of well(ft) | 0.1666667 |
| depth of well (ft) | 20 |
| | |
| volume of waste 1 well (ft^3) | 0.4363323 |
| # of wells | 65 |
| total ft^3 of waste | 28 |
| total gallons | 212.17313 |
| # of 55 gallon drums | 4.0 |
| cost of disposal | $ 600.00 |

**APPENDIX G - PRESENT VALUE OF PERIODIC COSTS ALTERNATIVE 2**

| Year | Cost | Number of Annual Periods | Annual Discount Rate | Number of 5-Year Periods | 5-Year Discount Rate | Number of 10-Year Periods | 10-Year Discount Rate | Total Non-Discounted Cost | Present Value Cost |
|---|---|---|---|---|---|---|---|---|---|
| Capital (Year 0) | $ 2,535,000 | 1 | 0.000 | NA | NA | NA | NA | $ 2,535,000 | $ 2,535,000 |
| LTM & Reporting - Alt 2 (Years 1 through 5) | $ 60,000 | 5 | 0.016 | NA | NA | NA | NA | $ 300,000 | $286,000.00 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| **Total Annual Costs** | | | | | | | | **$ 300,000** | **$286,000** |
| **Total Capital and Annual Costs** | | | | | | | | **$ 2,835,000** | **$ 2,821,000** |

**Note:**

1. Discount rate of 1.6% was used for a 5-yr period, as published by the Office of Management and Budget (OMB) in November 2024.

**APPENDIX G - PRESENT VALUE OF PERIODIC COSTS ALTERNATIVE 3A & 3B**

| Year | Cost | Number of Annual Periods | Annual Discount Rate | Alternative 3A | | Alternative 3B | |
|---|---|---|---|---|---|---|---|
| | | | | Non-Discounted Cost | Present-Value Cost | Non-Discounted Cost | Present-Value Cost |
| Capital (Year 0) - 3A | $ 739,000 | 1 | 0.000 | $ 739,000 | $ 739,000 | NA | NA |
| Capital (Year 0) - 3B | $ 551,000 | 1 | 0.000 | NA | NA | $ 551,000 | $ 551,000 |
| LTM & Reporting - Alt 3a, 4a & 5 (Years 1 through 5) | $ 58,000 | 5 | 0.016 | $ 290,000 | $ 277,000 | NA | NA |
| LTM & Reporting - Alt 3a, 4a, 5 (Years 6 through 30) | $ 36,000 | 25 | 0.023 | $ 900,000 | $ 606,000 | NA | NA |
| LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 1 through 5) | $ 60,000 | 5 | 0.016 | NA | NA | $ 300,000 | $ 286,000 |
| LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 6 through 30) | $ 38,000 | 25 | 0.023 | NA | NA | $ 950,000 | $ 639,000 |
| Long Term IC/EC Inspections, Certifications and Reporting | $ 6,000 | 30 | 0.023 | $ 180,000 | $ 129,000 | $ 180,000 | $ 129,000 |
| | | | | | | | |
| **Total Annual Costs** | | | | **$ 1,370,000** | **$ 1,012,000** | **$ 1,430,000** | **$ 1,054,000** |
| **Total Capital and Annual Costs - 3A & 3B** | | | | **$ 2,109,000** | **$ 1,751,000** | **$ 1,981,000** | **$ 1,605,000** |

**Note:**

1. Discount rates of 1.6% and 2.3% were used for a 5-yr and 30-yr period respectively, as published by the Office of Management and Budget (OMB) in November 2024.

## APPENDIX G - PRESENT VALUE OF PERIODIC COSTS ALTERNATIVE 4A AND 4B

| Year | Cost | Number of Annual Periods | Annual Discount Rate | Alternative 4A | | Alternative 4B | |
|---|---|---|---|---|---|---|---|
| | | | | Non-Discounted Cost | Present Value Cost | Non-Discounted Cost | Present Value Cost |
| Capital (Year 0) - 4A | $ 571,000 | 1 | 0.000 | $ 571,000 | $ 571,000 | NA | NA |
| Capital (Year 0) - 4B | $ 387,000 | 1 | 0.000 | NA | NA | $ 387,000 | $ 387,000 |
| LTM & Reporting - Alt 3a, 4a & 5 (Years 1 through 5) | $ 58,000 | 5 | 0.016 | $ 290,000 | $ 277,000 | NA | NA |
| LTM & Reporting - Alt 3a, 4a, 5 (Years 6 through 30) | $ 36,000 | 25 | 0.023 | $ 900,000 | $ 606,000 | NA | NA |
| LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 1 through 5) | $ 60,000 | 5 | 0.016 | NA | NA | $ 300,000 | $ 286,000 |
| LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 6 through 30 | $ 38,000 | 25 | 0.023 | NA | NA | $ 950,000 | $ 639,000 |
| Long Term IC/EC Inspections, Certifications and Reporting | $ 6,000 | 30 | 0.023 | $ 180,000 | $129,000.00 | $ 180,000 | $ 129,000 |
| | | | | | | | |
| **Total Annual Costs** | | | | **$ 1,370,000** | **$ 1,012,000** | **$ 1,430,000** | **$ 1,054,000** |
| **Total Capital and Annual Costs - 4A & 4B** | | | | **$ 1,941,000** | **$ 1,583,000** | **$ 1,817,000** | **$ 1,441,000** |

**Note:**

1. Discount rates of 1.6% and 2.3% were used for a 5-yr and 30-yr period respectively, as published by the Office of Management and Budget (OMB) in November 2024.

## APPENDIX G - PRESENT VALUE OF PERIODIC COSTS ALTERNATIVE 5

| Year | Cost | Number of Annual Periods | Annual Discount Rate | Number of 5-Year Periods | 5-Year Discount Rate | Number of 10-Year Periods | 10-Year Discount Rate | Total Non-Discounted Cost | Present Value Cost |
|---|---|---|---|---|---|---|---|---|---|
| Capital (Year 0) | $ 478,000 | 1 | 0.000 | NA | NA | NA | NA | $ 478,000 | $ 478,000 |
| LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 1 through 5) | $ 60,000 | 5 | 0.016 | NA | NA | NA | NA | $ 300,000 | $ 286,000 |
| LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 6 through 30) | $ 38,000 | 25 | 0.023 | NA | NA | NA | NA | $ 950,000 | $ 639,000 |
| Long Term IC/EC Inspections, Certifications and Reporting | $ 6,000 | 30 | 0.023 | NA | NA | NA | NA | $ 180,000 | $ 129,000 |
| | | | | | | | | | |
| **Total Annual Costs** | | | | | | | | **$ 1,430,000** | **$ 1,054,000** |
| **Total Capital and Annual Costs** | | | | | | | | **$ 1,908,000** | **$ 1,532,000** |

**Note:**

1. Discount rates of 1.6% and 2.3% were used for a 5-yr and 30-yr period respectively, as published by the Office of Management and Budget (OMB) in November 2024.

## APPENDIX G - PRESENT VALUE OF PERIODIC COSTS ALTERNATIVE 6

| Year | Cost | Number of Annual Periods | Annual Discount Rate | Number of 5-Year Periods | 5-Year Discount Rate | Number of 10-Year Periods | 10-Year Discount Rate | Total Non-Discounted Cost | Present Value Cost |
|---|---|---|---|---|---|---|---|---|---|
| Capital (Year 0) | $ 63,000 | 1 | 0.000 | NA | NA | NA | NA | $ 63,000 | $ 63,000 |
| LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 1 through 5) | $ 60,000 | 5 | 0.016 | NA | NA | NA | NA | $ 300,000 | $ 286,000 |
| LTM/MNA & Reporting - Alt 3b, 4b and 6 (Years 6 through 30) | $ 38,000 | 25 | 0.023 | NA | NA | NA | NA | $ 950,000 | $ 639,000 |
| Long Term IC/EC Inspections, Certifications and Reporting | $ 6,000 | 30 | 0.023 | NA | NA | NA | NA | $ 180,000 | $ 129,000 |
| | | | | | | | | | |
| **Total Annual Costs** | | | | | | | | **$ 1,430,000** | **$ 1,054,000** |
| **Total Capital and Annual Costs** | | | | | | | | **$ 1,493,000** | **$ 1,117,000** |

**Note:**

1. Discount rates of 1.6% and 2.3% were used for a 5-yr and 30-yr period respectively, as published by the Office of Management and Budget (OMB) in November 2024.

## Appendix G - OMB Circular A-94 Interest Rates

**OMB Circular No. A-94**

**APPENDIX C**
**(Revised November 14, 2024)**

**DISCOUNT RATES FOR COST-EFFECTIVENESS, LEASE PURCHASE, AND RELATED ANALYSES**

**Effective Dates**. This appendix is updated annually. This version of the appendix is valid for calendar year 2025. A copy of the updated appendix can be obtained in electronic form through the OMB home page at https://www.whitehouse.gov/wp-content/uploads/2025/01/CircularA-94AppendixC.pdf. The text of the Circular is found at https://www.whitehouse.gov/wp-content/uploads/2023/11/CircularA-94.pdf, and a table of past years' rates is located at https://www.whitehouse.gov/wp-content/uploads/2025/01/CircularA-94DiscountHistory.pdf. Updates of the appendix are also available upon request from OMB's Office of Economic Policy (a94@omb.eop.gov).

**Nominal Discount Rates**. A forecast of nominal or market interest rates for calendar year 2025 based on the economic assumptions for the 2026 Budget is presented below. These nominal rates are to be used for discounting nominal flows, which are often encountered in lease-purchase analysis.

**Nominal Interest Rates on Treasury Notes and Bonds of Specified Maturities (in percent)**

| 3-Year | 5-Year | 7-Year | 10-Year | 20-Year | 30-Year |
|---|---|---|---|---|---|
| 3.7 | 3.8 | 3.9 | 4.1 | 4.4 | 4.4 |

**Real Discount Rates**. A forecast of real interest rates from which the inflation premium has been removed and based on the economic assumptions for the 2026 Budget is presented below. These real rates are to be used for discounting constant-dollar flows, as is often required in cost-effectiveness analysis.

**Real Interest Rates on Treasury Notes and Bonds of Specified Maturities (in percent)**

| 3-Year | 5-Year | 7-Year | 10-Year | 20-Year | 30-Year |
|---|---|---|---|---|---|
| 1.5 | 1.6 | 1.8 | 1.9 | 2.2 | 2.3 |

Analyses of projects with terms different from those presented above may use a linear interpolation. For example, a four-year project can be evaluated with a rate equal to the average of the three-year and five-year rates. Projects with durations longer than 30 years may use the 30-year interest rate.

REGENESIS

Technology-Based Solutions for the Environment

PROJECT NAME

# Irvington Rugs and Cleaners

## Preliminary Remedial Design and Application Proposal


**PREPARED FOR**

WSP
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# Project Summary

In this document, REGENESIS outlines a comprehensive approach, encompassing the proposed solution, project objectives, recommended technologies, a concise application design summary, and a treatment area depiction.

## Proposed Approach

REGENESIS Remediation Services (RRS) is pleased to submit these feasibility study estimates to WSP for remedial solutions at eh Irvington Rugs and Cleaners site in Irvington, NY (NYSDEC Site#360175) These remedial solutions will inlcude stand-alone and combinations of PlumeStop® Colloidal Activated Carbon™ (PlumeStop), S-MicroZVI®, AquiFix™, and Bio-Dechlor INOCULUM® Plus (BDI Plus). The proposed applications will inlcude permeable reactive barrier (PRB) and injection grids to treat chlorinated volatile organic compounds (CVOCs) and per-and polyfluoroalkyl substances (PFAS). For the primary CVOC impacts a combination of abiotic, in-situ chemcial reduction (ISCR), and biotic, enhanced reductive dechlorination (ERD), are proposed using S-MZVI, AquifIx, and BDI Plus. The PlumeStop only PRB will remove PFAS from the aqueous phase by greatly enhancing the aquifer's sorption capacity and halting migration of thsi plume. All proposed remediation is aasume to be applied over an eight (8) foot vertical interval of approximately 8 to 16 feet below ground surface (bgs). Direct-push injection methods have been assumed in all of the remedial designs.

This proposal provides remedial designs and cost estimates for the following:

- Installation of a 45-foot long PRB for CVOC plume control along west side of N. Dutcher St. via ISCR/ERD.
- Installation of a 50-foot long PRB for PFAS plume control along west side of N. Dutcher St. via sorption.
- Installation of a remediation grid zone of 2,585 sq. ft. at Building 49 CVOC plume core/source area via ISCR/ERD.
- Installation of a remediation grid of 300 sq. ft. near CVOC plume core area at DP-03 via ISCR/ERD with an alternative remedial solution to include sorption comingled PFAS impacts.

## Estimated Projected Costs

- All costs represent turn-key project totals including products, mobilization, and application by RRS, and direct-push subcontractor. *A PlumeShield® performance warranty may be included for the PFAS treatment upon completion of the site conceptual model data review for an additional cost.
- N. Dutcher Street CVOC PRB: $64,000 -$77,000
- N. Dutcher Street PFAS PRB: $127,000 -$153,000*
- Building at #49 CVOC grid area: $138,000 - $166,000
- DP-03 area CVOC only approach: $30,000 - $36,000
- DP-03 area CVOC/PFAS approach: $52,000 - $63,000

Use this for second injection

Use this for first injection

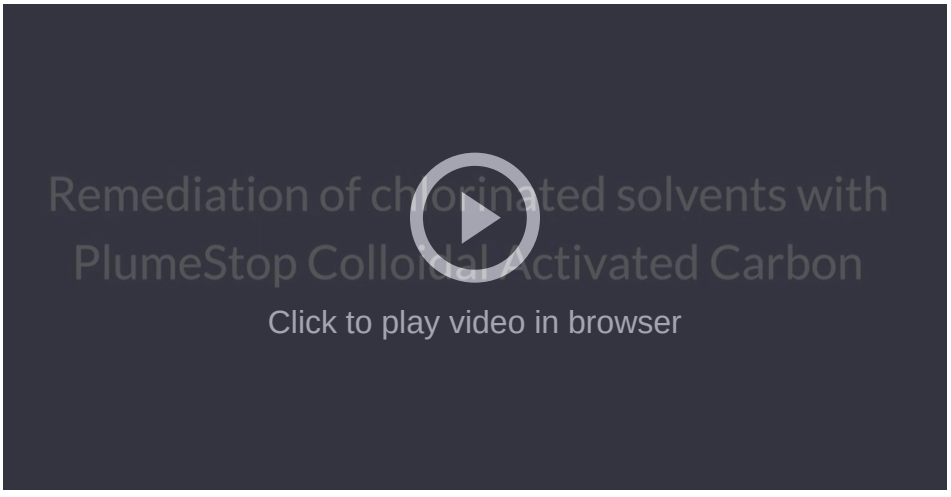
## Design Summary

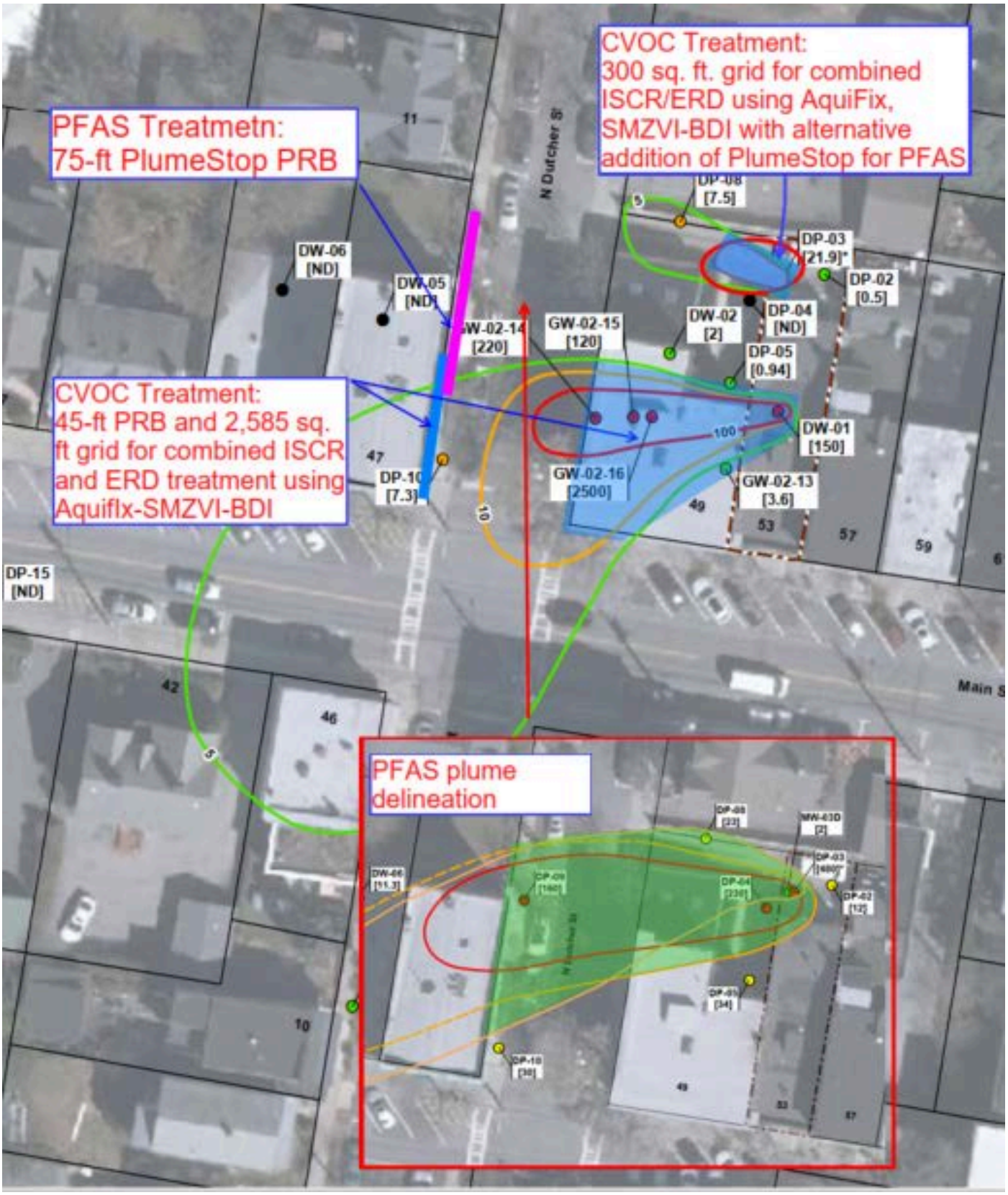
Based on amount injected during pilot, assume twice as much time required.

| Remediation Area (Vertical Thickness 8 ft.) | PRB length feet | Grid Area sq. feet | Products to be applied | | | | Direct-Push Inj. Points | Injection Volume gallons | Project duration days |
|---|---|---|---|---|---|---|---|---|---|
| | | | PlumeStop lbs | AquiFix lbs | S-MZVI lbs | BDI Liters | | | |
| N. Dutcher St CVOC PRB | 45 | 585 | | 3,200 | 700 | 18 | 8 | 2,965 | 2 |
| N. Dutcher St PFAS PRB | 75 | 975 | 7,600 | | | | 30 | 8,279 | 5 |
| Bldg #49 CVOC Plume Core | | 2,585 | | 8,000 | 2,000 | 18 | 26 | 7,982 | 4 |
| No. CVOC core area DP-03 | | 300 | | 800 | 200 | 18 | 6 | 1,936 | 1 |
| No. CVOC/PFAS area DP-03 | | 300 | 1,200 | 400 | 200 | 18 | 8 | 2,937 | 2 |
| **Totals** | **120** | **4,745** | **8,800** | **12,400** | **3,100** | **72** | **78** | **24,100** | **14** |

## Case Studies and Pertinent Product Information

- Plumestop® Case Study: PlumeStop Barrier Protects Drinking Water Supply WellsPFAS Case Studies
- Plumestop® Case Study: NY Brownfield PFAS + CVOC Remediation
- S-MicroZVI® Case Study: Tinker AFB
- S-MicroZVI® Technical Bulletin: Benefits of Sulfidation
- AquiFix™
- BDI Ohio Manufacturing cVOC Case Study
- Bio-Dechlor INOCULUM Plus (BSI Plus) Spec Sheet
- PFAS Case Studies
- PFAS Technical Resources
- PlumeShield®






Irvington Rug and Cleaners

WSP

January 07, 2025

**Figure 1 - Treatment Area Map**

REGENESIS

Technology-Based Solutions for the Environment

# Technical Approach

REGENESIS proposes stand-alone and combined product mixes to achieve optimal remedial approaches and one-time applications for the CVOC and PFAS impacts at the site with applications of PlumeStop® Liquid Activated Carbon™ (PlumeStop), Sulfidated-Micro Zero Valent Iron (S-MicroZVI®), AquiFix™, and Bio-Dechlor INOCULUM Plus (BDI PLUS®). These solutions, which are fully compatible and can be injected as a single mixture, work synergistically to foster rapid concentration reductions and provide sustainable long-term treatment through sorption, abiotic, and biological degradation pathways while minimizing the potential for daughter product formation.

PlumeStop

PlumeStop, designated for the PFAS PRB and as an option for the DP-03 area grid,, is a colloidal form of activated carbon. PlumeStop is designed to readily disperse the activated carbon particles from the injection point without the use of high pressures and leaves a thin coating of particles on the soil matrix throughout the targeted treatment zone. This process creates a substantial sorption surface, immediately reducing contaminant concentrations in groundwater, thus halting further migration and facilitating efficient and controlled remediation.

**US Patents: 7,585,132; 9,770,743; 9,776,898; 10,005,684. Europe Patents: 3,027,562 and 3,105,190.*

PlumeStop Nutrients are included with all orders of PlumeStop. These nutrients packets are separate from the colloidal activated carbon concentrate and are mixed in at the time of application. They are formulated to provide a source of macronutrients (nitrogen, phosphorus and potassium, or N, P, K) and act as a biostimulant for contaminant degrading bacteria, either indigenous or augmented. Macronutrients, which are often limited in an aquifer, serve as vital building blocks for microbial biomass and enzymes involved in contaminant breakdown processes and can enhance the efficiency and speed of bioremediation.

**PlumeStop Nutrients**

| Chemical Name | CAS Number | % |
|---|---|---|
| Dipotassium Phosphate | 7758-11-4 | 20-30% |
| Monopotassium Phosphate | 7778-77-0 | 30-40% |
| Ammonium Sulfate | 7783-20-2 | 30-50% |

S-MicroZVI

To promote rapid CVOC contaminant reduction via abiotic degradation pathways, we propose S-MicroZVI. S-MicroZVI is a concentrated suspension of sulfidated, colloidal zero-valent iron, designed for enhanced and long-lasting reactivity. Upon application to the subsurface, it employs an in-situ chemical reduction (ISCR) mechanism, directly destroying chlorinated ethenes (e.g., TCE) through abiotic degradation pathways, minimizing the formation of harmful daughter products, such as vinyl chloride. Furthermore, S-MicroZVI contributes to the enhancement of biological degradation by creating and sustaining a reduced environment conducive to the activity of dechlorinating bacteria.

AquiFix

For enhancing the biotic CVOC degradation pathways, we integrate AquiFix™, an innovative electron donor compatible and co-injectable with PlumeStop. AquiFix is formulated with both fast and slow-releasing electron donor materials, driving the biodegradation of chlorinated solvents present in groundwater for up to 10 years. Its unique design incorporates an easily injected, solid-phase source of fatty acids and beneficial nutrients, which disperses widely within aquifer flux zones and actively supports dechlorinating microbe populations. It swiftly establishes a reducing environment and provides a crucial hydrogen source to dechlorinating bacteria through an initial rapid release of organic carbon. Subsequently, AquiFix offers slow-release fatty acids, promoting and sustaining the reductive dechlorination of cVOCs. This slow-release feature decreases the frequency of re-application while enhancing its efficiency. Moreover, AquiFix's compatibility with PlumeStop allows for safe co-application with no interference to contaminant sorption if applied with the Liquid Activated Carbon.

Bio Dechlor INOCULUM Plus

Additionally, we recommend incorporating Bio-Dechlor INOCULUM Plus (BDI PLUS®) into the treatment approach. BDI PLUS is an enriched natural consortium containing species of Dehalococcoides sp. (DHC). This culture rapidly and completely dechlorinates chlorinated solvents to non-toxic end products, including ethene, carbon dioxide, and water. Furthermore, it is capable of dehalogenating halomethanes and haloethanes, as well as mixtures of these contaminants.

## Determining Contaminant Flux using FluxTracer®

FluxTracer® Flux Mapping Tools are easy-to-use devices that vertically delineate contaminant mass flux and groundwater velocity within a monitoring well to guide remedial design applications. Each FluxTracer comprises five two-foot-long stainless-steel screen canisters secured in series on a pre-measured central wire line equipped with a modified J-Plug well cap. FluxTracers are always pre-assembled, arriving at your site ready to deploy. The unique design provides joint-like flexibility between the closely stacked canisters, allowing easy installation and removal from a well.

Each FluxTracer canister is filled with an adsorbent material pre-loaded with biodegradable tracers. The tracers are composed of five different alcohols, each having well-known partitioning characteristics with the adsorbent material. As groundwater passively flows through a FluxTracer canister over the deployment period, the alcohol tracers are depleted from the adsorbent, with the net loss of the tracers directly correlating to the groundwater speed. At the same time, any contaminants present in the groundwater sorb onto the adsorbent during the deployment period. The total mass of contaminants accumulated on the adsorbent is then quantified, and the contaminant mass flux is calculated.

FluxTracers are installed in a well across a predetermined vertical interval of the saturated zone. They are typically emplaced in the well for two weeks and then retrieved. Upon removal, the FluxTracer devices are easily repackaged into the provided sleeves with zip ties and returned to the REGENESIS Lab for analysis. No on-site disassembly or sampling is required.

Upon receipt in the REGENESIS lab, each FluxTracer canister's contents will be sampled and analyzed at one-foot intervals. From those analyses, an accurate vertical profile of contaminant mass flux ($mg/m^2/day$) and groundwater Darcy flux (speed) (cm/day) is generated, and the results are provided in a report. The generated data provides remedial designers with important information on the flux zones within the aquifer, ultimately improving the remedial application and results.

REGENESIS recommends deploying FluxTracers at this site during the site characterization process to gain the necessary information to finalize the remedial design and approach for the PRB's.. Please contact REGENESIS to obtain a scope of work for FluxTracer deployment.

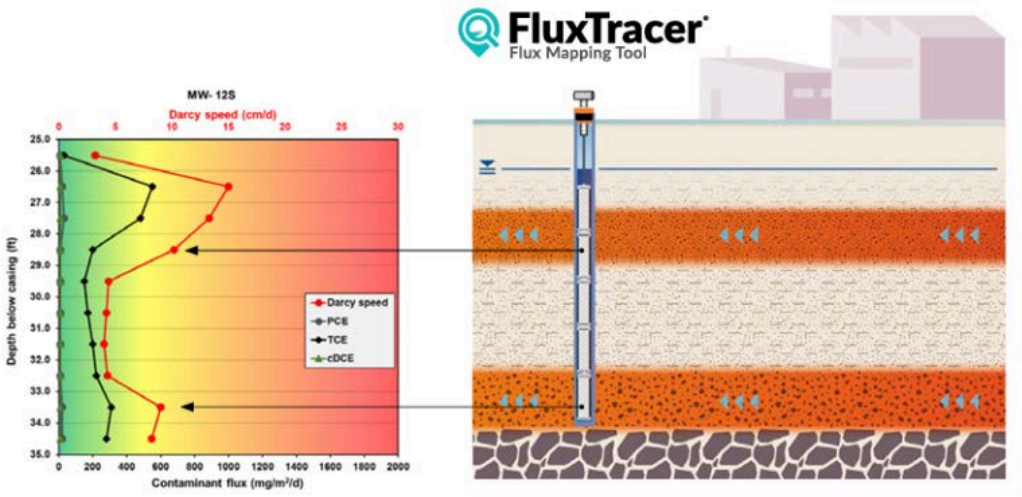



*Illustration of a FluxTracer installed in a heterogeneous aquifer, and the ability to identify higher water and contaminant flux zones in an example data set.*

## Qualifiers (Design Considerations)

A list of pertinent qualifiers has been provided below to define the performance expectations for this remedy. REGENESIS will be happy to discuss these with you in detail.

- Seepage velocity/mass flux is a primary driver in determining the required PlumeStop dosing of a treatment zone. Confirming the extent of the flux zone(s) and mass flux rates is the basis for our recommendation of FluxTracers at the site.
- WSP is responsible for determining the groundwater flow direction, which guides the placement/orientation of the proposed barrier to ensure it is as perpendicular as possible to flow throughout the hydrologic cycle. The PRB's location and orientation, as presented in this proposal, are to be confirmed by WSP
- Contaminants located beyond the proposed barrier before implementation may be left untreated. Areas downgradient the proposed treatment barriers are subject to matrix back-diffusion of contaminants, subsurface heterogeneities, and groundwater flow anomalies.
- This design assumes that the overall trend in COC concentration is not increasing and plume core an source areas are being treated concurrently.
- This design assumes that there is not a significant amount of soil-bound mass near the barriers..
- This design assumes that no other incompatible treatments have been applied or will be applied near this barrier in the future.
- The designation of In-Area Performance Monitoring Wells PlumeStop PRB for PFAS only will be positioned within five (5) feet and downgradient of the PRB if.

## Performance Objectives and Monitoring

The purpose of this remedial approach is to address off-site migration concerns at the property boundary. The goal will be to achieve reductions of CVOCs (PCE, TCE, DCE, and VC) and PFAS below regulatory standards at the defined compliance wells downgradient of the permeable reactive barriers. The table below outlines the baseline concentrations for key performance monitoring wells.

To measure performance at your site, we recommend that the following analytical parameters be collected at key wells within the zone of influence of treatment.

| In-Situ Performance Monitoring Parameters | |
|---|---|
| **Analytical Parameter** | **Method** |
| Contaminants of Concern (COC's) | Varies |
| pH | Meter reading taken in flow-through cell (DO can also be measured with a Hach kit) |
| Dissolved Oxygen (DO) | |
| Oxidation Reduction Potential (ORP) | |
| Total Organic Carbon (TOC) | EPA 415.1 or EPA 9060 |

After application, the recommended monitoring frequency is quarterly.

REGENESIS recommends that monitoring wells be installed and adequately positioned to assess the performance of this remedy. These wells will serve as crucial instruments for reflecting the effectiveness of our treatment process and ensuring regulatory compliance. The first well will be placed upgradient of the treatment zone to establish background water quality conditions. A second well will be positioned in or close to the barriers to monitor the performance of the treatment barrier no more than five (5) feet from the injection locations. The third well will be positioned downgradient of the barrier to evaluate the reduction of contaminant mass flux on the effluent side of the treatment.

# PROJECT SEQUENCE

The table below outlines the sequence of steps toward the final design, warranty applicability, and project implementation.

| PROJECT SEQUENCE |
| --- |
| **FluxTracer Deployment**<br>REGENESIS recommends FluxTracers be deployed during the site evaluation/characterization stage to aid in the development of the final scope of work. |
| **Establish Performance Expectations and Monitoring Requirements**<br>Performance monitoring well network, regulatory targets, and remedial timeframes shall be established before developing a final scope of work. |
| **Finalize Design and Cost Estimate**<br>REGENESIS submits the final design and cost estimate. |
| **Project Implementation**<br>• Sign acceptance of the proposal<br>• Finalize contract documents<br>• Confirm account credit status<br>• Complete remediation services logistics evaluation<br>• Complete Design Verification Testing<br>• Confirm delivery address and date<br>• Schedule application and ship product<br>• Initiate project application<br>• Post remedy sampling<br>• Performance evaluation |

# RRS Statement of Qualifications

RRS provides turn-key remediation planning, design, and application services. RRS field scientists are college degreed professionals who understand the details of each remediation design, the conceptual site model, the remediation chemistry being applied, the significance of the designed amendment dosing and achieving subsurface distribution, and how a breakdown of any one of these and other factors can result in poor remediation performance. They have the unique background and experience to understand the significance of modifications made in the field.

RRS' direct management of the injection program optimizes the design and ultimately, the overall remedy performance. No one has more professional experience handling and applying *in situ* remediation products than RRS personnel.

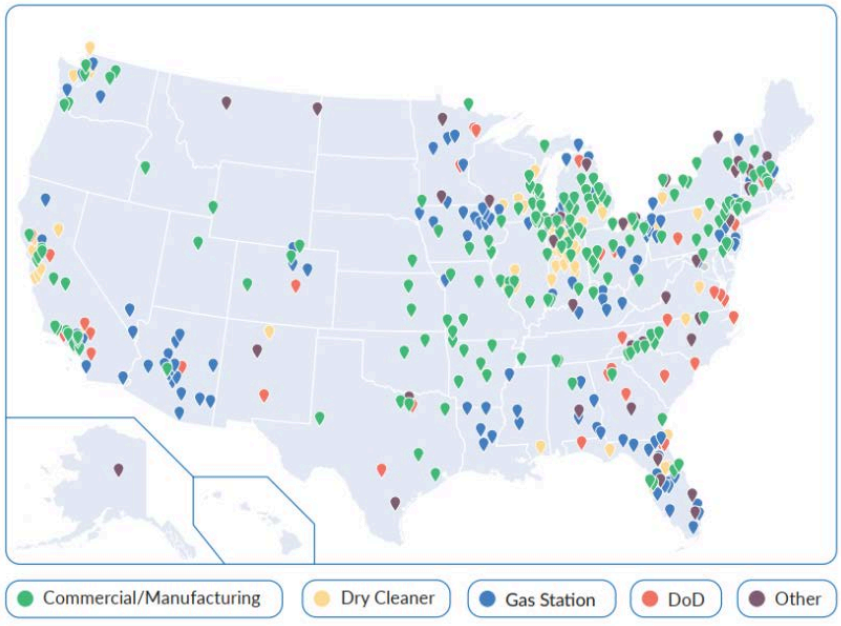
RRS has been offering industry-leading application services combined with excellence in field activity management for over a decade. We succeed by meeting the cleanup objectives established by the environmental engineering firms who contract our services. To produce this outcome, we employ field-experienced, disciplined, and dedicated project teams who work with our clients to address the unique requirements of each project site. Astute technical insight and timely, direct, and honest communication are hallmarks of RRS. Our reputation for meeting or exceeding clients' objectives has been proven in project successes throughout North America.

**Further information on what sets RRS apart is provided in the following technical resources:**

- RRS: Performance Driven, Results Based
- The RRS Difference
- RRS Project Experience

**With decades of application experience, RRS is strategically located across the country to mobilize and assist on a wide range of sites throughout the US.**

**RRS consistently completes over 100 Projects annually across the US. For a current map of projects completed please click this link.**



# RRS Scope of Services

RRS, as part of its role, will operate under the guidance of WSP to execute the remedial actions in the field, employing the chosen remediation methodologies. The collaboration between RRS and WSP will entail joint responsibilities in carrying out this scope of work.

Collaborating with WSP, REGENESIS will facilitate the development of site-specific **Design Verification Testing (DVT)** prior to the development of the final design and scope of services. This testing is essential to validate the congruence of subsurface conditions at the designated application sites with those incorporated in the design. Typically conducted before or concurrently with the initial site mobilization, the DVT program may include additional elements and costs, usually of minor significance. More comprehensive details can be accessed through the following link: **DVT Technical Memo**

Additionally, prior to and during the injection, **Placement Validation (PV) testing** will be conducted for the PLumeStop PRB PV serves as a standard in-field methodology involving the extraction of soil cores and the observation of water samples to assess the dispersion of amendments during the remedial application. RRS will execute PV at the outset of the application and periodically thereafter. In-field adaptations may be implemented during the application if PV testing suggests adjustments are required to ensure the distribution of remedial amendments aligns with the design.

The distribution of responsibilities is elaborated upon in this section as well as under the Assumptions/Qualification segment. At the outset of each day, RRS will convene a safety tailgate meeting to discuss the day's objectives, procedures, assigned roles, and review health and safety concerns.

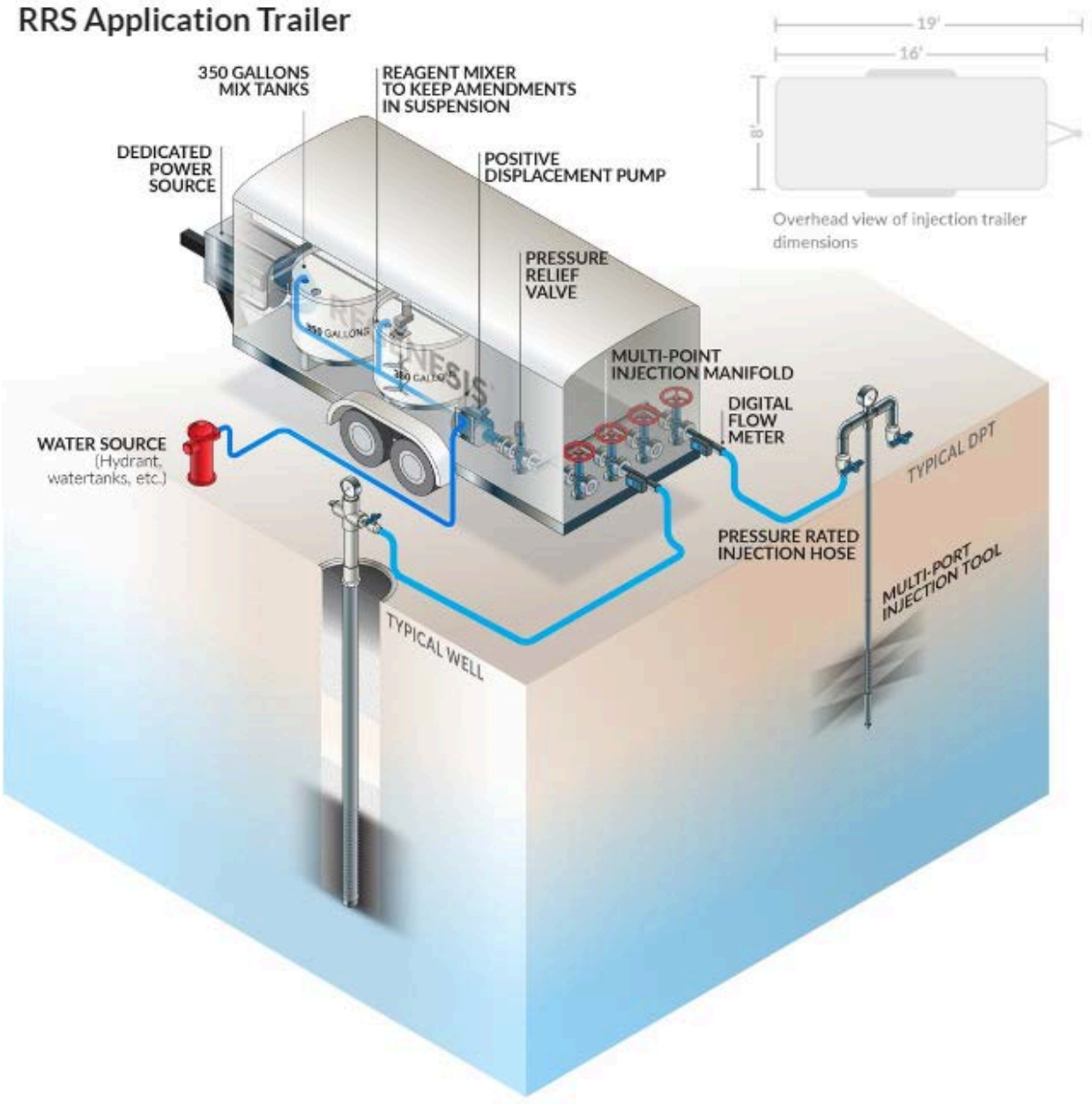
RRS will be outfitted with various injection tool alternatives compatible with the selected diameter Direct Push Technology (DPT) rods. The injection tool configuration will be advanced either to the upper or lower extent of the target treatment zone, and injections will be conducted utilizing either a bottom-up or top-down technique based on the subsurface lithology.

Remediation technologies will be mixed with water, utilizing a custom-built injection system (see below), adhering to the specified solution concentration. This mixture will be consistently agitated during the injection process. Parameters such as pressures, flow rates, and overall volume will be closely monitored and digitally recorded for each injection interval. To enhance efficiency on-site, simultaneous injections at multiple locations may be performed. RRS will vigilantly monitor the injection points and their surroundings for any indications of surfacing, and a spill response kit will remain on standby.

Throughout the application, real-time data will be collected and analyzed to corroborate design assumptions and the dispersion of reagents in the subsurface. Depending on the remedial agent applied, the gathered and analyzed data may encompass groundwater quality parameters (e.g., pH, conductivity, Dissolved Oxygen (DO), Oxidation-Reduction Potential (ORP), etc.), measurements of water table depth, visual indicators observed via groundwater or soil samples, and in-field concentration tests of injected substances. This data collection is typically conducted during the application process when operating within 10 feet of appropriately screened monitoring wells.

Guided by the collected information, the project team may introduce adjustments to the remediation design to enhance the injection application's efficacy. These adjustments might involve alterations in injection concentrations and volume per location.

Upon the conclusion of the injection operation, RRS will demobilize all equipment and personnel from the site. A comprehensive injection summary report, encompassing details of injection points (interval depths, injection pressure/ flow rates, reagent volume, time elapsed, and surfacing occurrences), on-site observations, and any notable information, will be prepared and submitted to WSP.



# Project Responsibilities

All responsibilities below are considered preliminary, therefore, can be evaluated and realigned to meet WSP specific requirements as part of finalizing an executed agreement. RRS will begin to implement the assigned responsibilities and work with WSP once a final approach, design, and implementation scope has been agreed upon.

## RRS will:

- RRS will provide and ship the specified quantities of the remediation technologies to the site address provided by WSP. RRS will coordinate with WSP prior to any shipment of product.
- RRS will provide qualified and experienced 40-hour HAZWOPER-certified personnel to implement and manage the remediation application scope of work.
- RRS will provide a custom-built injection system and other miscellaneous support equipment to handle, prepare, and apply the remediation technologies during the application process.
- RRS will subcontract a Direct Push Technology contractor with a qualified operator and crew of sufficient size to advance the appropriate tooling to the targeted treatment depth. The Direct Push Technology contractor will be equipped with enough downhole tooling for multiple simultaneous injections, hole abandonment supplies to close boring locations to the ground surface, and other required items to complete the scope of work.
- RRS will coordinate with the Direct Push Technology contractor and request a public utility locate through the nationwide “811 call before you dig” resource to approximate the location of buried public utilities at the site.
- RRS will perform site reconnaissance and pre-application activities that include H&S orientation, sensitive receptor identification and protection, treatment area identification, and equipment staging.
- RRS will prepare a site-specific health and safety plan.
- RRS will provide site safety equipment, including cones and caution tape, to delineate the immediate work area while making efforts to limit the impact on business operations at the site.
- RRS will perform real-time reagent distribution diagnostics during injection activities to allow for field modifications, as needed, to ensure optimal results.
- RRS will monitor the injection flow rates and pressures and observe signs of reagent surfacing around active injection areas. If surfacing is detected, RRS will stop or slow down injection activities at that location to stop additional surfacing and remove/vacuum up recoverable surfaced fluid.
- RRS will work directly with our design team to fill any data gaps identified during the injection application, thereby more effectively maintaining the project objectives and goals.
- RRS will collect project-related refuse and empty treatment chemistry containers daily to keep the site clean.
- RRS will generate a detailed injection summary report upon completion of the injection event. Items to be incorporated will include injection depths, material quantities, injection flow rates and pressures, an injection location map, implementation pictures, and other noteworthy field observations.

## WSP will:

- WSP will coordinate project schedule and remediation technology order with REGENESIS to ensure adequate shipping and mobilization time.
- WSP will coordinate site access with property owner to coincide with project schedule and identify a secure product staging area.
- WSP will take delivery of the remediation technology prior to RRS mobilization and stage inside a secure location where the material will not be affected by inclement weather and is accessible by forklift or other equivalent means.
- WSP will provide the means to further maneuver product around the site (forklift or equivalent) as needed during the duration of the application activities. Product containers will need to be staged within 10 ft. of the remediation injection system.
- WSP will provide a water source (e.g., hydrant) capable of producing at least 30 gpm for the duration of the project within 300 ft. of the project staging area, at no cost to RRS. WSP will coordinate and provide a backflow preventer for on-site hydrant utilization.
- Should private underground utilities be within or near the treatment area, WSP will contract with a private utility locating service provider to identify and mark the approximate location prior to RRS mobilization.
- WSP will procure any necessary permits needed to complete the project including right of way, UIC and municipal.
- WSP is responsible for all soil, air and groundwater sampling and analysis.
- Should surfaced/short-circuited remediation technology material need to be containerized, WSP is responsible for the classification, transportation and disposal of the waste.
- WSP will provide a depth to water meter and field water quality meter similar to a YSI 556 with a down-hole sensor capable of reaching the water table and well screen interval while on-site for injection activities.
- WSP will provide access to a restroom during on-site hours.
- All empty product containers will be the responsibility of WSP for proper disposal/recycling. General refuse will be collected and disposed of in a WSP provided refuse container on-site.
- Any traffic control requirement beyond providing cones and caution tape is the responsibility of WSP

# RRS Assumptions and Qualifications

In generating this proposal, RRS relied upon professional judgment and site-specific information provided by others. Using this information as input, we performed calculations based upon known chemical and geologic relationships to estimate product quantities and subsurface placement required to achieve the remedial goals. The attached design summary tables specify the assumptions used to complete the remedial design. We request that these modeling input assumptions be verified by your firm before injection. Other assumptions and qualifications related to this proposal are as follows:

- The product and services cost outlined will be valid for 60 days from the proposal date. If beyond 60 days, RRS reserves the right to update the cost.
- The freight charges included for product delivery above are estimated at the time of proposal generation. Actual freight charges are neither set nor guaranteed by RRS and are calculated when the product order is placed. This price may vary from what is estimated above. Actual freight charges for product delivery will be invoiced.
- Freight delivery time frames cannot be guaranteed and RRS will not be responsible for any delays or increased costs associated with those delays.
- If applicable, sales tax charges for product, freight, and services are considered estimated at the time of proposal submittal. The appropriate sales tax category (i.e., product, freight, and services) and actual sales tax rate are finalized at the time of invoice and may change from date of proposal submittal.
- RRS will have access to the site for equipment operation and secure storage of materials and equipment throughout the project duration. Access to each work area location will be clear and free of obstructions. RRS also assumes the injection trailer can be staged within 80 feet of the furthest injection point location.
- For safety reasons, access to the treatment area will be limited to RRS and WSP personnel.
- RRS is not responsible for treatment chemistry infiltration into undesired locations beyond our visible control. The remediation design and injection procedures contain the necessary precautions to minimize the likelihood of surfacing of the treatment chemistry.
- RRS personnel will have access to the site for work up to 12 hours per day, Monday through Friday (daylight hours). However, the standard workday does not exceed 10 hours, with travel time Monday through Friday. A 10-hour workday does not mean 10 hours on-site and/or injection pumping. Additional charges may apply for work completed on Saturday and Sunday.
- RRS is not responsible for damage to unmarked utilities and subsurface structures. WSP will review as-built drawings with RRS and confirm clearance prior to injection activities and the remedial fluids being distributed throughout the subsurface.
- Pricing and work schedule assume union labor and prevailing wages (Davis-Bacon) are not required.
- This proposal assumes probing and drilling will begin at the ground surface. If hand auger, concrete/asphalt coring, or air knife services are required, additional charges, including surface restoration will apply.
- RRS assumes that a direct-push style drill rig (7800 series or smaller) can access all injection point locations and drive a minimum of 1.5" diameter injection tooling to the required depth. If site conditions limit the use of the provided direct-push rig or tooling for any injection point and other drilling methods are required to complete the task, additional charges will apply.
- Ground surface restoration costs have not been included. Additional charges will apply if surface restoration is needed.
- Site conditions can change over time and should be monitored post-injection. RRS is not responsible for changing site conditions after completing the scope of work and demobilizing. Such changes include but are not limited to changes related to applicable borehole abandonment (i.e., swelling of backfill material), surface restoration, well conditions, and on-site utilities.

# Health and Safety Plan

RRS is committed to providing a safe and healthy working environment for all on-site employees, including WSPs and contractors on-site. Before mobilization, RRS will develop a site-specific Health and Safety Plan (HASP) and designate an on-site safety officer. All personnel on-site are required to participate in daily safety tailgate meetings to proactively identify potential hazards and mitigate risks to the full extent possible.

In addition to the hours of rigorous safety training courses all personnel are required to complete, RRS also incorporates a behavior-based safety program by utilizing our DoneSafe mobile application (app) interface on every site. This app encourages our personnel to actively search for potential on-site risks and document mitigation actions. The effectiveness of our safety program can be seen in our industry-leading Experience Modification Rating (EMR) listed in table below.

| Year | Total Hours | EMR |
|---|---|---|
| 2023 | 193,433 | 0.67 |
| 2022 | 189,458 | 0.73 |
| 2021 | 125,592 | 0.71 |
| 2020 | 162,037 | 0.64 |

**RRS safety tailgate meetings and HASP will include the following:**

- Site map .
- List of personnel and contact information for employees on-site and supporting the project.
- Route to the nearest occupational treatment facility and hospital along with contact information.
- Job Hazard Analysis (JHA) detailing each job task on-site with its potential hazards and best practices to avoid those hazards.
- Description and hazards of the contaminants of concern (COC) with appropriate Personal Protection Equipment (PPE) requirements.
- List and description of REGENESIS chemicals on-site including a Safety Data Sheet (SDS) for each chemical.
- Checklist of site safety equipment including fire extinguishers, eyewash station, first aid kit, spill prevention kit and any site-specific equipment needed.
- Daily tailgate safety meeting sheet with identified hazards and risks associated with the site and job tasks for that day, along with shared learning observations from the previous day.



# Pricing Assumptions

**COST ESTIMATE DISCLAIMER:** The cost listed in this feasibility study estimate above assume conditions set forth within the proposed scope of work and assumptions and qualifications. Changes to either could impact the final cost of the project. This may include final shipping arrangements, sales tax, or application-related tasks such as product storage and handling, access to water, etc. If the items listed need to be modified, please contact Regenesis for further evaluation.

**REGENESIS** developed this Scope of Work in reliance upon the data and professional judgments provided by those who completed the earlier environmental site assessment(s) and in reliance upon REGENESIS' prior experience on similar project sites. The fees and charges associated with the Scope of Work were generated through REGENESIS' proprietary formulas and thus may not conform to billing guidelines, constraints, or other limits on fees. REGENESIS does not seek reimbursement directly from any government agency or any governmental reimbursement fund (the "Government"). In any circumstance where REGENESIS may serve as a supplier or subcontractor to an entity that seeks reimbursement from the Government for all or part of the services performed or products provided by REGENESIS, it is the sole responsibility of the entity seeking reimbursement to ensure the Scope of Work and associated charges are in compliance with and acceptable to the Government before submission. When serving as a supplier or subcontractor to an entity that seeks reimbursement from Government, REGENESIS does not knowingly present or cause to be presented any claim for payment to the government.

**PROFESSIONAL JUDGEMENT:** In generating this estimate, REGENESIS relied upon professional judgment and site-specific information provided by others. Using this information as input, we performed calculations based upon the known chemical and geologic relationships to generate an estimate of the mass of product and subsurface placement required to effect the remediation of the site.

# Terms & Conditions

1. **PAYMENT TERMS.** Net 30 Days. Accounts outstanding after 30 days will be assessed 1.5% monthly interest. Volume discount pricing will be rescinded on all accounts outstanding over 90 days. An early payment discount of 1.5% Net 10 is available for cash or check payments only. We accept Master Card, Visa and American Express.
2. **RETURN POLICY.** A 15% re-stocking fee will be charged for all returned goods. All requests to return product must be pre-approved by seller. Returned product must be in original condition and no product will be accepted for return after a period of 90 days.
3. **FORCE MAJEURE.** Seller shall not be liable for delays in delivery or services or failure to manufacture or deliver due to causes beyond its reasonable control, including but not limited to acts of God, acts of buyer, acts of military or civil authorities, fires, strikes, flood, epidemic, war, riot, delays in transportation or car shortages, or inability to obtain necessary labor, materials, components or services through seller's usual and regular sources at usual and regular prices. In any such event Seller may, without notice to buyer, at any time and from time to time, postpone the delivery or service dates under this contract or make partial delivery or performance or cancel all or any portion of this and any other contract with buyer without further liability to buyer. Cancellation of any part of this order shall not affect Seller's right to payment for any product delivered or service performed hereunder.
4. **LIMITED WARRANTY.** Seller warrants the product(s) sold and services provided as specified on face of invoice, solely to buyer. Seller makes no other warranty of any kind respecting the product and services, and expressly DISCLAIMS ALL OTHER WARRANTIES OF WHATEVER KIND RESPECTING THE PRODUCT AND SERVICES, INCLUDING ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE AND NON-INFRINGEMENT.
5. **DISCLAIMER.** Where warranties to a person other than buyer may not be disclaimed under law, seller extends to such a person the same warranty seller makes to buyer as set forth herein, subject to all disclaimers, exclusions and limitations of warranties, all limitations of liability and all other provisions set forth in the Terms and Conditions herein. Buyer agrees to transmit a copy of the Terms and Conditions set forth herein to any and all persons to whom buyer sells, or otherwise furnishes the products and/or services provided buyer by seller and buyer agrees to indemnify seller for any liability, loss, costs and attorneys' fees which seller may incur by reason, in whole or in part, of failure by buyer to transmit the Terms and Conditions as provided herein.
6. **LIMITATION OF SELLER'S LIABILITY AND LIMITATION OF BUYER'S REMEDY.** Seller's liability on any claim of any kind, including negligence, for any loss or damage arising out of, connected with, or resulting from the manufacture, sale, delivery, resale, repair or use of any goods or performance of any services covered by or furnished hereunder, shall in no case exceed the lesser of (1) the cost of repairing or replacing goods and repeating the services failing to conform to the foregoing warranty or the price of the goods and/or services or part thereof which gives rise to the claim. IN NO EVENT SHALL SELLER BE LIABLE FOR SPECIAL INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS, OR FOR DAMAGES IN THE NATURE OF PENALTIES.
7. **INDEMNIFICATION.** Buyer agrees to defend and indemnify seller of and from any and all claims or liabilities asserted against seller in connection with the manufacture, sale, delivery, resale or repair or use of any goods, and performance of any services, covered by or furnished hereunder arising in whole or in part out of or by reason of the failure of buyer, its agents, servants, employees or customers to follow instructions, warnings or recommendations furnished by seller in connection with such goods and services, by reason of the failure of buyer, its agents, servants, employees or customers to comply with all federal, state and local laws applicable to such goods and services, or the use thereof, including the Occupational Safety and Health Act of 1970, or by reason of the negligence or misconduct of buyer, its agents, servants, employees or customers.

8. **EXPENSES OF ENFORCEMENT.** In the event seller undertakes any action to collect amounts due from buyer, or otherwise enforce its rights hereunder, Buyer agrees to pay and reimburse Seller for all such expenses, including, without limitation, all attorneys and collection fees.
9. **TAXES.** Liability for all taxes and import or export duties, imposed by any city, state, federal or other governmental authority, shall be assumed and paid by buyer. Buyer further agrees to defend and indemnify seller against any and all liabilities for such taxes or duties and legal fees or costs incurred by seller in connection therewith.
10. **ASSISTANCE AND ADVICE.** Upon request, seller in its discretion will furnish as an accommodation to buyer such technical advice or assistance as is available in reference to the goods and services. Seller assumes no obligation or liability for the advice or assistance given or results obtained, all such advice or assistance being given and accepted at buyer's risk.
11. **SITE SAFETY.** Buyer shall provide a safe working environment at the site of services and shall comply with all applicable provisions of federal, state, provincial and municipal safety laws, building codes, and safety regulations to prevent accidents or injuries to persons on, about or adjacent to the site.
12. **INDEPENDENT CONTRACTOR.** Seller and Buyer are independent contractors and nothing shall be construed to place them in the relationship of partners, principal and agent, employer/employee or joint ventures. Neither party will have the power or right to bind or obligate the other party except as may be expressly agreed and delegated by other party, nor will it hold itself out as having such authority.
13. **REIMBURSEMENT.** Seller shall provide the products and services in reliance upon the data and professional judgments provided by or on behalf of buyer. The fees and charges associated with the products and services thus may not conform to billing guidelines, constraints or other limits on fees. Seller does not seek reimbursement directly from any government agency or any governmental reimbursement fund (the “Government”). In any circumstance where seller may serve as a supplier or subcontractor to an entity that seeks reimbursement from the Government for all or part of the services performed or products provided by seller, it is the sole responsibility of the buyer or other entity seeking reimbursement to ensure the products and services and associated charges are in compliance with and acceptable to the Government prior to submission. When serving as a supplier or subcontractor to an entity that seeks reimbursement from the Government, seller does not knowingly present or cause to be presented any claim for payment to the Government.
14. **APPLICABLE LAW/JURISDICTION AND VENUE.** The rights and duties of the parties shall be governed by, construed, and enforced in accordance with the laws of the State of California (excluding its conflict of laws rules which would refer to and apply the substantive laws of another jurisdiction). Any suit or proceeding hereunder shall be brought exclusively in state or federal courts located in Orange County, California. Each party consents to the personal jurisdiction of said state and federal courts and waives any objection that such courts are an inconvenient forum.
15. **ENTIRE AGREEMENT.** This agreement constitutes the entire contract between buyer and seller relating to the goods or services identified herein. No modifications hereof shall be binding upon the seller unless in writing and signed by seller's duly authorized representative, and no modification shall be effected by seller's acknowledgment or acceptance of buyer's purchase order forms containing different provisions. Trade usage shall neither be applicable nor relevant to this agreement, nor be used in any manner whatsoever to explain, qualify or supplement any of the provisions hereof. No waiver by either party of default shall be deemed a waiver of any subsequent default.

# PLUMESTOP TECHNICAL LIBRARY

## Case Studies

- Plumestop® Case Study: Cannery Site Reductive Dechlorination Dual Approach
- Plumestop® Case Study: NFA for Large PCE Plume
- PlumeStop® Case Study: PlumeStop Application Paves The Way For Redevelopment
- Plumestop® Case Study: PlumeStop Barrier Protects Drinking Water Supply Wells
- PlumeStop® Case Study: Site Goals Achieved Within 2 Months at Manufacturing Facility
- Combined Remedy Case Study: Advanced Remedial Technologies Restore Michigan Neighborhood

## Technical Bulletins

- PlumeStop® Technical Bulletin 1.1: Distribution Through a Permeable Medium
- PlumeStop® Technical Bulletin 2.2: Sorption of Contaminants from Solution-Column Study
- PlumeStop® Technical Bulletin 3.1 Post-Sorption Contaminant Biodegradation
- PlumeStop® Technical Bulletin 4.1: Regeneration of Sorptive Capacity
- PlumeStop® Technical Bulletin 6.1: Treatment Solution of Back Diffusion-Tank Study
- Colloidal Activated Carbon (CAC) Sampling Guidance Document

## Videos

- Remediation of Chlorinated Solvents with PlumeStop
- S-MicroZVI Remedial Process Explained
- Introducing AquiFix: The First -Ever Solid Micron-Scale Electron Donor to Treat Chlorinated Solvents

## Other

- Podcast: Talking Under Water: Interview with Scott Wilson
- FluxTracer® Flux Mapping Tool

## Intellectual Property

REGENESIS is the developer of PlumeStop® colloidal activated carbon technology and holds a patent portfolio related to the use of colloidal activated carbon for in situ remediation:

- Patent controlling the injection of activated carbon particles into subsurface media under low pressure:
  - US Patent #7,585,132
- Patents covering the use of colloidal activated carbon to treat heterogeneous media to stop matrix back-diffusion:
  - US Patent # 9,776,898
  - US Patent # 10,005,684
  - Europe Patent # 3,105,190
- Patent controlling the engineering of subsurface hydrophobicity in order to sorb contaminants from aquifer waters:
  - US Patent # 10,478,876
  - Europe Patent # 17813929 (pending)
- Patent covering chemistries to suspend and disperse colloidal activated carbon particles for optimum distribution within subsurface media
  - US Patent #9,770,743
  - Europe Patent # 3,027,562

## REGENESIS Indemnification

The use of PlumeStop® is free from infringement of any other intellectual property. REGENESIS will indemnify customers, who have purchased and properly applied PlumeStop, against claims of infringement of any other intellectual property.

KLOZUR® SP

EVONIK
Leading Beyond Chemistry

12-Dec-2024

| | | | |
|---|---|---|---|
| **Customer:** | **WSP** | **Prepared by:** | |
| **Contact:** | **Chuck Staples** | **Josephine Molin** | |
| **Site Location:** | **Irvington NY** | **1-773-991-9615** | |
| **Proposal Number:** | **26489** | **Josephine.Molin@evonik.com** | |

# Klozur® SP Demand Calculations and Cost Estimate

| Item | Packaging Type | Quantity (lbs) | Unit Rate ($USD / lb) | Cost in $USD (FOB Origin) |
|---|---|---|---|---|
| Klozur® SP | 55.1 lb bags | 8,816 | 1.58 | $13,929 |
| **Klozur® Activator(s)** | | | | |
| 25% NaOH | Totes | 14,000 | 0.45 | $6,300 |

| | Number of Deliveries | Estimated Cost Per Delivery[4] | |
|---|---|---|---|
| **Shipping** | N/A | N/A | Not Included |
| **Taxes**[3] | | | Not Included |
| | | **Total:** | **$20,229** |

1) Number of packages needed is rounded up to nearest whole unit.

2) Price valid for 30 days from date at top of document. Terms: net 30 days. Prices are FOB Origin.

3) Any applicable taxes not included. Please provide a copy of your tax exempt certificate or resale tax number when placing your order. In accordance with the law, applicable state and local taxes will be applied at the time of invoicing if Evonik has not been presented with your fully executed tax exemption documentation.

4) If shipping not included, estimated freight rates available upon request. Freight rates provided are estimates only. Standard delivery time can vary from 1-3 weeks from time of order, depending upon volume. Expedited transport can be arranged at extra cost.

5) Return Policy: Within 90 days of sale and following written approval by Evonik, products in their unopened containers, which by analysis meet the original specifications and are in the same condition as they were shipped, will be accepted for return at invoiced price, less a 25% handling charge and return freight paid by buyer. Products that are made to order or custom blended are non-returnable. Returned products that are not received back by Evonik in the same condition as they were shipped or that have been stored outside, may be subject to a higher restocking fees or no refund at all.

**6) All sales are per Evonik's Terms and Conditions.**

7) All disclaimers within the standard proposal/demand calculator attachments apply to any and all estimates.

# PROPOSAL ATTACHMENTS

## PRODUCT OVERVIEW

Klozur® SP is an environmental grade sodium persulfate which has been delivered safely and cost effectively to treat a wide variety of common contaminants of concern with an unmatched combination of power and control. With proper activation, Klozur SP can generate both oxidative and reductive pathways delivering the power to destroy the most recalcitrant of contaminants.

For more information on activated Klozur® SP, please contact your Evonik technical representative or www.klozur.com.

## SITE INFORMATION

| | Value | Unit | Note |
|---|---|---|---|
| Target Area Width (perpendicular to GW flow direction) | 20 | ft | customer supplied |
| Target Area Length (Parallel to GW flow direction) | 60 | ft | customer supplied |
| Area of Treatment | 1,200 | ft2 | customer supplied |
| Top of Treatment Zone | 0 | ft bgs | customer supplied |
| Base of Treatment Zone | 8 | ft bgs | customer supplied |
| Treatment Zone Thickness | 8 | ft | customer supplied |
| Treatment Volume | 9,600 | ft3 | calculated value |
| Porosity | 35 | % | default value |
| Ground Water Volume | 25,131 | USG | calculated value |
| Soil Density | 90 | lbs/ft3 | default value |
| Soil Mass | 864,000 | lb | calculated value |
| Fraction Soil Mass Contacted* | 100 | % | default value |
| Base Buffering Capacity (Alkaline Activation only) | 1.2 | g 25 percent NaOH / kg soil | estimated value, it is recommend that this be analytically determined |
| Soil Oxidant Demand | 1.3 | g Klozur / kg soil | estimated value, it is recommend that this be analytically determined |

* Fraction soil mass contacted may be less for sites with contact limitations such as fractured bedrock or those with low permeable materials.

**Disclaimer:**

The estimated dosage and recommended application methodology described in this document are based on the site information provided to Evonik, but are not meant to constitute a guaranty of performance or a predictor of the speed at which a given site is remediated. Klozur® persulfate and activator demand calculations do not take into account the kinetics, speed of the reaction, or ability to establish contact between the reagents and contamination in the subsurface. These calculations represent the minimum anticipated amount needed to treat the contaminants of concern (COCs). As a result, these calculations should be used as a general approximation for purposes of an initial economic assessment. Evonik recommends that oxidant demand and treatability testing be performed to verify the quantities of oxidant needed.

## CONTAMINANTS OF CONCERN* (COCs)

**Concentrations:**

The following are estimates of the contaminant concentration in soil and groundwater within the target area. The total COC mass was calculated including estimated COC mass in groundwater, soil and NAPL, if present, within the targeted area.

| Contaminant | GW (mg/L) | Soil (mg/kg) | NAPL (lbs) | Total COC Mass** (lb) |
|---|---|---|---|---|
| PCE | 0.5 | 2.0 | 0.0 | 1.8 |
| TCE | 0.0 | 0.5 | 0.0 | 0.4 |
| DCE | 0.01 | 0.3 | 0 | 0.2 |
| DRO | 0 | 330 | 0 | 286 |

**Remedial Goals and Target Mass Reductions:**

The target demand is determined by also accounting for remedial goals for each contaminant and represents the estimated mass reductions targeted for each contaminant.

| Contaminant | GW (mg/L) | Soil (mg/kg) | NAPL (lbs) | Total COC Mass Targeted*** (lbs) |
|---|---|---|---|---|
| PCE | 0.005 | 1.3 | 0 | 1.8 |
| TCE | 0.005 | 0.47 | 0 | 0.4 |
| DCE | 0.005 | 0.5 | 0 | 0.2 |
| DRO | 0 | 0 | 0 | 286 |

*Unless provided, sorbed concentrations were roughly estimated based on expected groundwater concentrations, foc and Koc values. For a more refined estimate, it is recommended that actual values be verified via direct sampling of the targeted treatment interval.

** Includes estimated contaminant mass in soil, groundwater, and NAPL (if provided) at the site.

*** Includes estimated contaminant mass in soil, groundwater, and NAPL (if provided) at the site with the remedial goals subtracted from the total mass onsite.

## KLOZUR® PERSULFATE DEMAND

The estimated mass of Klozur® SP accounts for target demand with the COCs, non-target demand associated with the soils (SOD) and a safety factor applied to each. The safety factor is intended to account for potential variability in the COC and SOD estimates and any other uncertainties associated with the application or site.

**The demand from COCs was estimated using:** **Degradation Ratio** The degradation ratio should be determined/verified in a bench or field test

| | Klozur SP Demand | Safety Factor | Klozur SP Demand with Factor | |
|---|---|---|---|---|
| Demand from COCs | 5,743 | 1.25 | 7,179 | lb |
| Demand from SOD | 1,123 | 1.25 | 1,404 | lb |

**Total Klozur® SP Demand:** **8,583** **lb** **To be applied in** **1** **application**

## KLOZUR® SP PACKAGING OPTIONS AND PRICING

Klozur® SP can be delivered to your site in a variety of packages including in bags, or two sizes of super sacks for your handling convenience. Pricing below is exclusive of shipping and any applicable taxes.

Estimate for : **Total Project Demand**

| Packaging Type | # of packages / pallet | lb Klozur® SP / pallet | # of packages needed |
|---|---|---|---|
| 55.1 lb bags | 40 | 2,204 | 160 |

| Packaging Type | Unit Rate ($USD / lb) | Quantity (lbs) | Cost in $USD (FOB Origin) |
|---|---|---|---|
| 55.1 lb bags | 1.58 | 8,816 | $13,929 |

## KLOZUR® ACTIVATION CHEMISTRIES

Klozur® activation chemistries are used to convert Klozur® SP into the highly reactive radicals. Choosing the right activator chemistry for your contaminants of concern is important in obtaining a successful site remediation. The choice of activator will be dependent upon the target contaminants, site lithology and hydrogeology, and other site conditions. While activator demand quantities for all methods are given, not all activation methods are recommended for your given contaminant or site conditions. Please consult with an Evonik technical representative for proper selection of activation chemistry.

Note: Only one type of activator is typically needed.

***Evonik Industries AG is the owner or licensee under various patent applications relating to the use of activation chemistries**

### Alkaline (High pH) Activation

Alkaline activated persulfate is the most commonly used activation method. Alkaline demand is a funcation of the alkalinity needed to neutralize generate $HSO_4^-$ from persulfate decomposition plus the amount needed to raise ground water / soil to a pH > 10. Common alkaline sources include 25% NaOH, hydrated lime, and Portland cement.

### Calculation for NaOH (high pH) demand:

Sodium hydroxide is a highly soluble form of alkalinity that is commonly used for injection events with Klozur® SP. Evonik recommends using 25% NaOH solutions as it has higher solubilities and minimal heat of dissolution issues.

| | | | | Units |
|---|---|---|---|---|
| NaOH Solution Concentration | | | 25 | % w/w |
| NaOH demand for HSO4 neutralization | | | 11,848 | lb Solution |
| Soil buffering amount | | | 1,037 | lb Solution |
| Package Type | Totes | Package Mass | 2,800 | lb Solution |
| Number of Packages | | | 5 | |
| Total NaOH demand | | | 14,000 | lb Solution |

** note: the addition of highly concentrated or crystalline NaOH to water is very exothermic. Add NaOH slowly to water, and allow for excess heat to dissipate.

### Hydrated Lime [$Ca(OH)_2$]

Hydrated Lime [$Ca(OH)_2$] is a solid alkali with a low solubility. It is well suited for soil mixing and for solid state emplacement applications. When selecting hydrated lime, evaluate impurities to maximize hydrated lime content and minimize carbonate content.

| | | | Total | Units |
|---|---|---|---|---|
| Assumed purity of $Ca(OH)_2$ to Activate Klozur® SP: | | | **92** | **%** |
| Package Type | 50 lb Bag | Package Mass | 50 | lb |
| Number of Packages | | | 65 | |
| Mass of $Ca(OH)_2$ to Activate Klozur® SP: | | | 3,250 | lb |

** $Ca(OH)_2$ has a low solubility and will typically be applied as a solid/slurry. As with any chemical material, it is recommended that precautions in the SDS be followed. Hydrated lime purity should be confirmed at time of order and masses adjusted as necessary.

**Portland Cement**

Portland cement, sometimes blended with blast furnace slag, is often used to activate persulfate when combining in situ stabilization (ISS) with remediation with Klozur® persulfate. Portland cement contains significant alkali which can generate alkaline activation conditions for persulfate and heat upon hydration. The amount of alkali in Portland cement can vary and should be determined prior to use.

Type of Binder **Portland cement**

| | Total | Units |
|---|---|---|
| Dose of Binder w/w with soil: | 3.0 | % (dry weight) |
| Estimated Mass of Binder: | 25,920 | lb |

** Portland cement and blast furnace slag are applied as a solid/slurry. As with any chemical material, it is recommended that precautions in the SDS be followed. The hydration of Portland cement can release heat, use caution when handling.

**Iron Chelate**

Iron chelate activation of persulfate is achieved when a suitable chelate is combined with dissolved iron in solution and injected with the persulfate. This is usually accomplished by using a chelated iron product such as Fe-EDTA, Fe-Lactate, or Fe-Citrate. This can also be achieved by first dissolving a source of the chelate (EDTA, lactate, or citrate) into a batch solution and then dissolving the iron from another compounds, such as iron sulfate. Evonik recommends targeting between 150 mg Fe/L to 600 mg Fe/L in the entire target pore volume in order to achieve sufficient activation of the persulfate. Higher levels of activator result in more rapid kinetics and may also be beneficial for higher contaminant concentrations.

| | | |
|---|---|---|
| Recommended concentration of Fe available in the groundwater | 200 | mg/L |

| Reagents | Mass (lbs) Total | Package Type | Mass per Package (lb) | Number of Packages Total | |
|---|---|---|---|---|---|
| Fe-EDTA | 331 | Bag | 55 | 6 | 6 |

## INSTALLATION VIA INJECTION

Klozur® SP will be delivered as a dry powder, packaged in 55.1-lb (25 Kg) bags, and 2,204 lb (1,000 Kg) supersacks (1,102 lbs, or 500 Kg, supersacks are available as special order items). Klozur® SP is highly soluble in water and can be injected via fixed wells, open boreholes or using direct push technology (DPT). Klozur® SP is typically batched at a concentration of between 50 to 450 g/L (5 to 35%) and Evonik recommends injecting at a concentration between 50 and 250 g/L, depending upon site design and conditions.

Effective treatment requires establishing contact between a sufficient amount of activated persulfate and the contaminant in the subsurface. A key element of establishing this contact in a source zone is the injection volume used to inject the activated persulfate reagents. Depending on the application method employed and site conditions, between 20% and 100% (with >50% typical) of the effective porosity is normally targeted during Klozur® SP injection, with a higher percent pore fill normally targeted for sites with slow groundwater velocities.

Below is an example injection scenario for the proposed mass Klozur® SP for this site. The suggested injection volumes may be altered based on the site specific conditions.

**Number of Applications** 1

| **Klozur SP Dosage** | **Project Totals** | |
|---|---|---|
| Mass of Klozur® SP | 8,816 | lb |
| Concentration in Total Pore Volume | 42 | g/L |
| | 4.1 | % w/w |
| Application rate by soil mass (dry weight) | 10.2 | g/kg |
| **Injection Locations** | | |
| Number of Injection Locations | 12 | locations |
| Radius of Influence | | |
| Design[1] | 6.5 | ft |
| Injection[2] | 4.7 | ft |
| Overlapping Design ROI[3] | 25 | % |
| Approximate Spacing between locations[4] | 10.0 | ft |

| **Injection Details** | **Project Totals** | |
|---|---|---|
| Total Injection Volume | 10,100 | gal |
| Percentage of Effective Pore Volume | 70 | % |
| Volume per Injection Location | 842 | gal |
| Klozur® SP Injection Concentration | 105 | g/L |
| | 9.8 | % w/w |
| Mass per Injection Location | | |
| Klozur® SP | 735 | lb |
| 25% NaOH | 1,167 | Lbs Solution |

**Design parameters should be considered approximations and suggestions. Site design engineers and contractors are ultimately responsible for the field application and design.**

Values are based upon client supplied data and other assumed values. Changes in any of the input values will affect and alter other values.

Notes:

1. Design radius of influence corresponds to the desired treatment radius from each injection location.
2. Injection radius of influence corresponds to the distance from each injection point the injection volume would distribute assuming uniform (cylindrical) distribution in the effective pore volume.
3. Approximate percentage of overlap between the Design ROI from the various injection locations. Actually percent overlap will depend upon injection location layout.
4. Approximate distance between injection locations. Actual distance will depend upon site layout.

## INSTALLATION USING SOIL MIXING

Soil mixing is a robust technology that can be used to establish contact between activated Klozur® SP and the contaminant by physically blending the contaminated soil with the reagents. Soil mixing is often accomplished using augers, excavator buckets, or rotating heads affixed to an excavator arm instead of the bucket. Many systems are specialized in that they can inject both liquid and slurrys at depth.

Loading for soil mixing projects is often based on either wet or dry soil weight and either as grams/Kilogram or % weight/weight. All values below are estimates, calculations or assumptions based on data provided to Evonik.

| | **Dry Weight** | | | **Wet Weight** | |
|---|---|---|---|---|---|
| Soil Dry Bulk Density | 90 | lbs/ft3 | Moisture Content | 20 | % |
| Dry Soil Weight | 864,000 | lb | Wet Soil Weight | 1,080,000 | lb |

| | **Klozur SP Loading** | | **Hydrated Lime Loading** | | **Portland Cement Loading** | |
|---|---|---|---|---|---|---|
| | **g/Kg** | **% w/w** | **g/Kg** | **% w/w** | **g/Kg** | **% w/w** |
| Dry Soil | **10.2** | **1.0** | **3.8** | **0.4** | **30.0** | **3.0** |
| Wet Soil | **8.2** | **0.8** | **3.0** | **0.3** | **24.0** | **2.3** |

**Parameters should be considered approximations and suggestions. Site design engineers and contractors are ultimately responsible for the field application and design.**

ELS® Microemulsion

EVONIK Leading Beyond Chemistry

| | | | |
|---|---|---|---|
| **Customer:** | **WSP** | | 9-Dec-2024 |
| **Contact:** | **Chuck Staples** | **Prepared by:** | |
| **Site Location:** | **Irvington NY** | **Josephine Molin** | |
| **Proposal Number:** | **26489** | **1-773-991-9615** | |
| **Application Type:** | **Plume Treatment (grid)** | **Josephine.Molin@evonik.com** | |

## ELS® Demand Calculations and Cost Estimate

Please find below a product quote with regard to the Site referenced above. A product description, design assumptions, demand calculations and application guidelines are included as an appendix to this cost proposal.

| Item | Quantity | Unit | Unit Price ($USD) | Cost in $USD (FOB Origin) |
|---|---|---|---|---|
| ELS® Microemulsion | 1,680 | lbs | $1.39 | $2,335 |
| **Optional items:** | | | | |
| Additional pH buffer (KHCO3) | 50 | lbs | $3.70 | $185 |
| DHC Inoculum (incl. minimum) | 15 | L | $120 | $1,800 |
| Estimated Shipping[3] | | per delivery | | Not included |
| Estimated Taxes[2] | | | | Not included |
| **Estimated Total** | | | | **$4,320** |

1) Price valid for 30 days from date at top of document. Terms: net 30 days. Prices are FOB Origin.

2) Any applicable taxes not included. Please provide a copy of your tax exempt certificate or resale tax number when placing your order. In accordance with the law, applicable state and local taxes will be applied at the time of invoicing if Evonik has not been presented with your fully executed tax exemption documentation.

3) Price excludes shipping. Freight estimates available upon request. Volumes were rounded up based on container size.

4) Return Policy: Within 90 days of sale and following written approval by Evonik, products in their unopened containers, which by analysis meet the original specifications and are in the same condition as they were shipped, will be accepted for return at invoiced price, less a 25% handling charge and return freight paid by buyer. Products that are made to order or custom blended are non-returnable. Returned products that are not received back by Evonik in the same condition as they were shipped or that have been stored outside, may be subject to a higher restocking fees or no refund at all.

**5) All sales are per Evonik's Terms and Conditions.**

**Disclaimer:**

The estimated dosage and recommended application methodology described in this document are based on the site information provided to us, but are not meant to constitute a guaranty of performance or a predictor of the speed at which a given site is remediated. The calculations in the Cost Estimate regarding the amount of product to be used in your project are based on stoichiometry or default minimum guideline values, and do not take into account the kinetics, or speed of the reaction. Note that the Stoichiometric mass represents the minimum anticipated amount needed to address the contaminants of concern (COCs). As a result, these calculations should be used as a general approximation for purposes of an initial economic assessment. Evonik recommends that you or your consultants complete a comprehensive remedial design that takes into consideration the precise nature of the COC impact and actual site conditions.

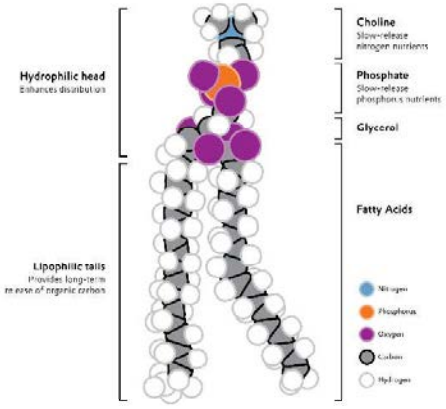
## PRODUCT OVERVIEW

ELS® is a lecithin-based microemulsion composed of complex organic carbon used to enhance anaerobic bioremediation. ELS® is delivered as an easy to handle 25% liquid emulsion that is cold water soluble and can be applied via existing wells, hydraulic injection networks, or direct push technology. ELS® is also available as a 100% concentrate for dilution in the field. Packaging options inlcude 5-USG pails, 50-USG drums, and 275-USG totes.



**Key attributes:**

• **Stable emulsions:** Lecithin is composed primarily of phospholipids, which have both hydrophilic and hydrophobic regions in their molecular structure. As a result, ELS® can be expected to form a more stable emulsion compared to oils that are strictly hydrophobic compounds.




• **Essential nutrients:** Lecithin's molecular structure includes both phosphorous and nitrogen. These structural nutrients are slowly released into the groundwater and become available for microbial consumption as the phospholipid molecules are fermented. This supports extended dehalogenation activity more effectively than competitive products that contain added inorganic nutrients which are rapidly consumed and can be lost through precipitation reactions or wash-out of the treatment zone.

• **Longevity:** ELS® contains a range of organic carbon substrates including phospholipids, fatty acids, complex carbohydrates, and simple sugars. As a result, its more readily degradable components serve to rapidly establish reducing conditions while its more complex components provides an extended hydrogen release of up to two years.

## SITE INFORMATION / ASSUMPTIONS

| | Value | Unit | Comment |
|---|---|---|---|
| **Treatment Area Dimensions:** | | | |
| Width of targeted zone (perpendicular to gw flow) | 20 | ft | customer supplied |
| Length of targeted zone (parallel to gw flow) | 60 | ft | customer supplied |
| Depth to top of treatment zone | 0 | ft bgs | customer supplied |
| Treatment zone thickness | 8 | ft | customer supplied |
| Treatment volume | 9,600 | ft3 | calculated value |
| Total Porosity | 35 | % | default value |
| Groundwater volume | 3,360 | ft3 | calculated value |
| Soil bulk density | 90 | lbs/ft3 | default value |
| Soil mass | 432 | ton | calculated value |
| **Transport characteristics:** | | | |
| Treatment time / design life for one application | 3 | years | default value |
| Linear groundwater flow velocity | 51 | ft/year | calculated value |
| Distance of inflowing gw over design life | 153 | ft | calculated value |
| Effective porosity for groundwater flow | 20 | % | default value |
| Volume of water passing region over design life | 4906 | ft3 | calculated value |
| Soil type | high permeability | | customer supplied |
| Fraction organic carbon in soil, foc | 0.010 | | estimated value |

## CONTAMINANTS OF CONCERN (COCs)

| Contaminant | GW (mg/L) | Soil* (mg/kg) | Total COC Mass** (lb) |
|---|---|---|---|
| PCE | 0.5 | 2 | 2.0 |
| TCE | 0.04 | 0.5 | 0.5 |
| DCE | 0.01 | 0.25 | 0.2 |

*Unless provided, sorbed concentrations were roughly estimated based on expected groundwater concentrations, foc and Koc values. For a more refined estimate, it is recommended that actual values be verified via direct sampling of the targeted treatment interval.

**The total COC mass was estimated based on concentrations in soil and groundwater within the targeted area plus expected contributions from inflowing groundwater over the projected design life.

## GEOCHEMICAL DATA

| Competing Electron Acceptors | GW (mg/L) | |
|---|---|---|
| Dissolved oxygen | 4.5 | customer provided |
| Nitrate (as N) | 5.8 | customer provided |
| Manganese (estimated conc. Mn(II) generated)* | 0.6 | default value |
| Iron (estimated conc. Fe(II) generated)* | 1 | default value |
| Sulfate | 26.5 | customer provided |

*An estimated projection of dissolved concentrations of Mn and Fe following ERD/ISCR were used to estimate H demand from the reduction of oxidized Fe and Mn minerals (typically only a portion of actual soil concentrations will be reduced).

| | |
|---|---|
| ORP (mV) | 7 |
| pH | 6.7 |

## STOICHIOMETRIC HYDROGEN DEMAND CALCULATIONS

| | GW (mg/L) | Soil (mg/kg) |
|---|---|---|
| H2 Demand from COCs | 0.03 | 0.13 |
| H2 Demand from Competing Electron Acceptors | 3.31 | 0.00 |
| Total H2 Demand | 3.33 | 0.13 |
| H2 Demand from Soil within Targeted Area | 0.11 | lb |
| H2 Demand from GW within Targeted Area | 0.70 | lb |
| H2 Demand from Influx over Design Life | 1.02 | lb |
| Total Estimated H2 Demand | 1.83 | lb |

## ELS® DEMAND CALCULATIONS

The stoichiometric demand for the targeted area was calculated using available data presented above, noting that the stoichiometric demand represents minimum requirements and require a complete geochemical data set to be calculated accurately. Therefore, the resulting ELS® dosing required to meet the estimated stoichiometric demand was compared to our minimum guidelines for the selected type of application, selecting the higher number.

**Application type:** Plume Treatment

| | Value | Unit |
|---|---|---|
| Specific H2 capacity of ELS (100% concentrate) | 349.2 | g H2/Kg |
| Concentration ELS® in GW to meet H2 demand | 25.0 | mg/L |
| Recommended minimum conc. lecithin in pore water* | 2,000 | mg/L |
| Recommended conc. of ELS® in pore water | 2,000 | mg/L |
| Mass of ELS® required (25% liquid emulsion) | 1,678 | lbs |
| Mass ELS® per container | 420 | lbs |
| Number of containers | 4 | containers |
| **Mass ELS® (rounded up based on container size)** | **1,680** | **lbs** |

*Our general recommended minimum guideline for the proposed application exceeds the dose rate required based on hydrogen demand calculations and was therefore used for the purpose of this dosing calculation.

## OPTIONAL DHC INOCULANT

Dehalococcoides sp (Dhc) are the only microorganisms demonstrated to completely degrade chlorinated ethenes to non-toxic end products (ethene). Dhc are also capable of degrading other chlorinated organics such as chlorinated ethanes. Bioaugmentation with a Dhc containing consortium is conducted during the substrate injection process, either as a discrete slug of the culture in anaerobic water or distributed through the entire injection solution immediately prior to injection. Dissolved oxygen and chlorine should be removed from the injection solution prior to adding the bioaugmentation culture. The Dhc inoculate will contain at least 1X10^11 cells per liter of Dhc. The recommended target concentration of Dhc in the treatment area is 1x10^7 cells per liter, however the application concentration can be modified based on site conditions (e.g., an existing Dhc population is present).

| | Value | Unit |
|---|---|---|
| Dechlorinating consortium conc. in inoculant | 1.00E+11 | DHC/L |
| Design final concentration after dilution in aquifer | 1.00E+07 | DHC/L |
| Volume of inoculant required | 10 | L |

*Note: The minimum shipping volume is 15 L (one small keg) exceeds the calculated requirement, and was therefore used in the quotation below.

## OPTIONAL pH BUFFER

If groundwater pH is below 6.5 or inoculants are to be applied together with the ELS®, we recommend that the ELS® injection solution be pH buffered to create optimal conditions for microbial growth. Based on laboratory tests, potassium bicarbonate, a fully soluble buffer, applied at a rate of 10 lbs / 4 kg per 420-lb drum of liquid emulsion of ELS (or 44 lbs / 20 kg KHCO3 per 460-lb drum of ELS concentrate) will buffer the pH of the injectate solution to circum-neutral. If baseline pH conditions were to be below 6, additional pH buffer will be needed to raise the pH of the groundwater to 7. The amount of buffer required to raise the pH of the groundwater to 7 will depend on the site-specific buffering capacity of the soil and will have to be determined by conducting a pH titration test. Sodium bicarbonate could also be considered for a lower cost option.

Type of pH buffer recommended: KHCO3

Total pH buffer demand = amount needed to neutralize ELS solution + amount needed to raise ground water / soil to a pH of 7

Soil buffering amount = amounbt pH buffer needed for ground water / soil pH adjustment, which can be determined in the laboratory via titration.

| | Value | Unit | |
|---|---|---|---|
| Mass pH buffer to neutralize ELS® solution | 40 | lbs | default value |
| Estimated soil buffering amount | 0 | lbs | estimated value |
| Total pH buffer demand | 40 | lbs | |

## INSTALLATION

ELS® will be delivered as a 25% liquid emulsion or as 100% concentrate in 55-USG drums, with 50 USG/190 litres per drum. Upon request ELS® is also available in 5 USG pails, 250 USG totes or in a tanker truck.

Depending on the application method employed, between 10% and 100% of the effective porosity is normally targeted during ELS® injection, with a higher percent pore fill normally targeted during low-flow injections into wells and injection networks. This is in contrast to applications via direct push technology (DPT) where normally around 10 to 15% is targeted. To facilitate the desired injection volume, ELS® will be diluted in the field.
The below table shows examples of mixing ratios per container and the resulting total injection volume and percent pore fill. The below mixing recipe may be scaled depending on the size of the mixing batch and packaging size, if alternative packaging is used.

| | |
|---|---|
| Packaging: | Drum |
| Mass per container (lbs): | 420 |
| Concentration as delivered: | 25% liquid emulsion |

**ELS® Mixing Recipe (per container)**

| **Dilution:** | **3-fold** | **10-fold** | **25-fold** |
|---|---|---|---|
| Mass ELS liquid emulsion per container (lbs) | 50 | 50 | 50 |
| Volume water per drum (USG) | 101 | 453 | 1,208 |
| Resulting volume ELS® solution per drum (USG) | 151 | 503 | 1,258 |
| Resulting ELS® concentration (% lecithin) | 8.3% | 2.5% | 1.0% |
| Total volume water (USG) | 403 | 1,812 | 4,831 |
| Total injection volume (USG) | 603 | 2,012 | 5,031 |
| Resulting injection volume to effective pore volume | 4.2% | 14.0% | 35.0% |

**Injection recommendations (can be altered):**

The ELS® Microemulsion can be injected via fixed wells or using direct push. The injection spacing would be determined based on the radius of influence achieved for the specific implementation method and lithology.

| | **Value** | **Unit** | **Comment** |
|---|---|---|---|
| Total mass ELS® microemulsion | 1,680 | lbs | calculated value |
| Dilution factor | 10 | | can be altered |
| Total volume of water required | 1,812 | U.S. gallons | calculated value |
| Volume of solution to inject | 2,012 | U.S. gallons | calculated value |
| Injection spacing (grid) | 10 | ft | customer provided |
| Number of injection points | 12 | locations | calculated value |
| Injection volume per point | 168 | U.S. gallons | calculated value |
| Injection volume per vertical foot | 21 | U.S. gallons | calculated value |
| Injection volume to effective pore space volume | 14 | percent | calculated value |

Note that the construction estimates presented above can be readily modified in the field or per recommendations from the injection contractor as required (for example, the concentration of the ELS® solution could be changed to modify the total injection volume or the injections spacing could be altered based on installation technology).

**Review and follow guidance in the appropriate Safety Data Sheet (SDS) with all workers prior to use.**

# APPENDIX H

# REMEDIAL ACTIVITY GREEN HOUSE GAS EMISSIONS

| Remedial Alternatives | GHG Emissions | Total energy Used | Water Consumption | Electricity Usage | Onsite $NO_x$ Emissions | Onsite $SO_x$ Emissions | Onsite $PM_{10}$ Emissions | Total $NO_x$ Emissions | Total $SO_x$ Emissions | Total $PM_{10}$ Emissions | Accident Risk Fatality | Accident Risk Injury |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | metric ton | MMBTU | gallons | MWH | metric ton | metric ton | metric ton | metric ton | metric ton | metric ton | | |
| 2 | 134.79 | 7697.67 | 24100.00 | 0.00 | 0.34 | 0.03 | 0.03 | 0.58 | 0.24 | 0.15 | 0.00 | 0.04 |
| 3a | 121.21 | 7622.96 | 12000.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.45 | 0.33 | 0.10 | 0.00 | 0.03 |
| 3b | 135.32 | 7805.08 | 3824.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.48 | 0.36 | 0.09 | 0.00 | 0.03 |
| 4a | 97.62 | 7318.34 | 12000.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.38 | 0.29 | 0.05 | 0.00 | 0.02 |
| 4b | 108.74 | 7421.76 | 12000.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.44 | 0.33 | 0.04 | 0.00 | 0.02 |
| 5 | 90.42 | 7214.04 | 15000.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.36 | 0.28 | 0.04 | 0.00 | 0.02 |
| 6 | 97.23 | 7.26E+03 | 0.00E+00 | 0.00E+00 | 1.30E-02 | 1.33E-03 | 1.17E-03 | 4.16E-01 | 3.05E-01 | 3.59E-02 | 1.78E-04 | 1.46E-02 |

**Additional Sustainability Metrics**

| Remedial Alternatives | Non-Hazardous Waste Landfill Space | Hazardous Waste Landfill Space | Topsoil Consumption | Costing | Lost Hours - Injury | Percent Electricity from Renewable Sources | Final Cost with Footprint Reduction |
|---|---|---|---|---|---|---|---|
| | tons | tons | cubic yards | $ | | % | $ |
| 2 | 0.00 | 385.00 | 0.00 | $ 1,776,995.00 | 0.34 | 0.0% | $ 1,776,995.00 |
| 3a | 0.00 | 192.00 | 0.00 | $ 548,287.00 | 0.21 | 0.0% | $ 548,287.00 |
| 3b | 0.00 | 192.00 | 0.00 | $ 430,447.00 | 0.21 | 0.0% | $ 430,447.00 |
| 4a | 0.00 | 26.00 | 0.00 | $ 443,707.00 | 0.17 | 0.0% | $ 443,707.00 |
| 4b | 0.00 | 26.00 | 0.00 | $ 325,867.00 | 0.16 | 0.0% | $ 325,867.00 |
| 5 | 0.00 | 0.00 | 0.00 | $ 360,955.00 | 0.16 | 0.0% | $ 360,955.00 |
| 6 | 0.00 | 0.00E+00 | 0.00E+00 | 1.24E+05 | 1.17E-01 | 0.0% | 1.24E+05 |

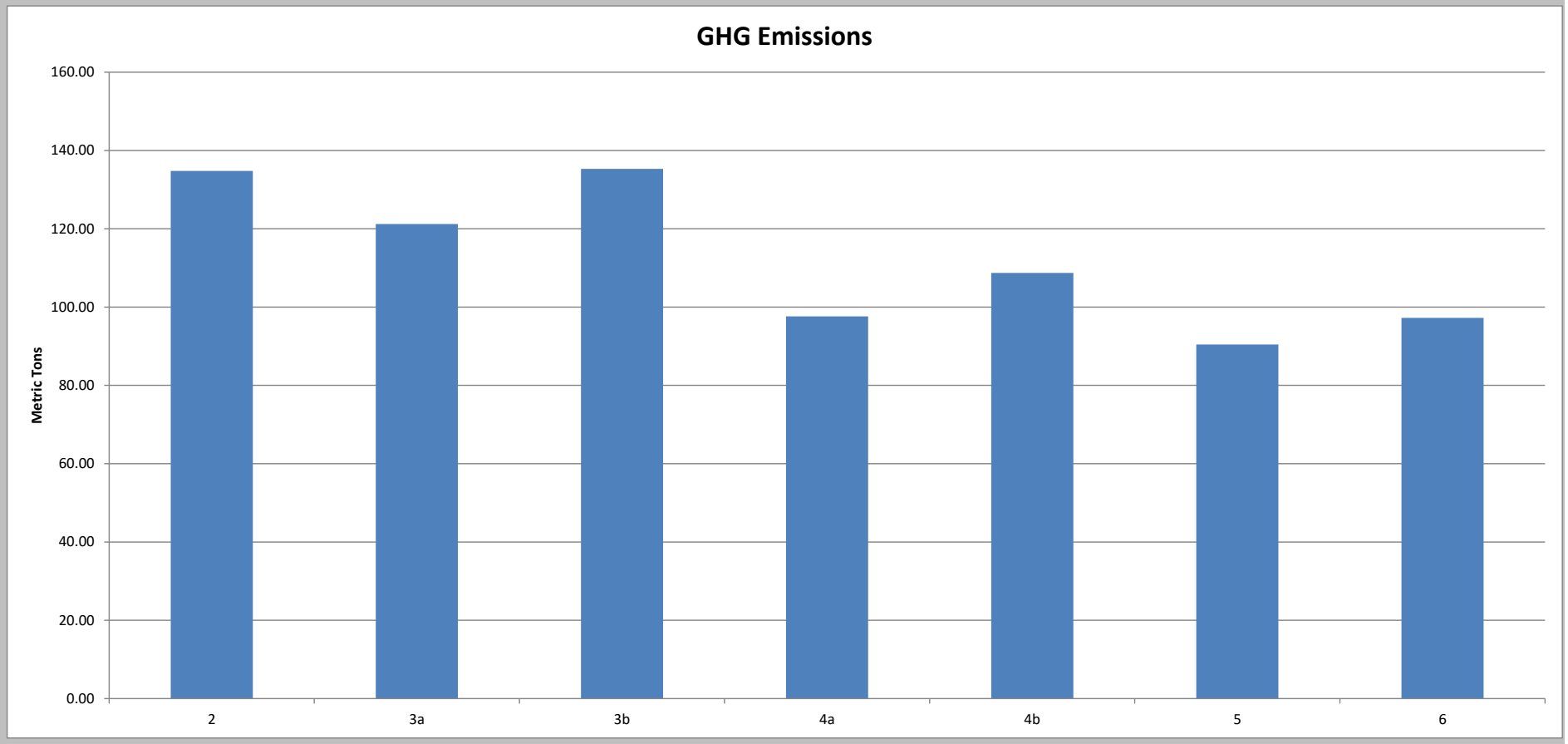
**Relative Impact**

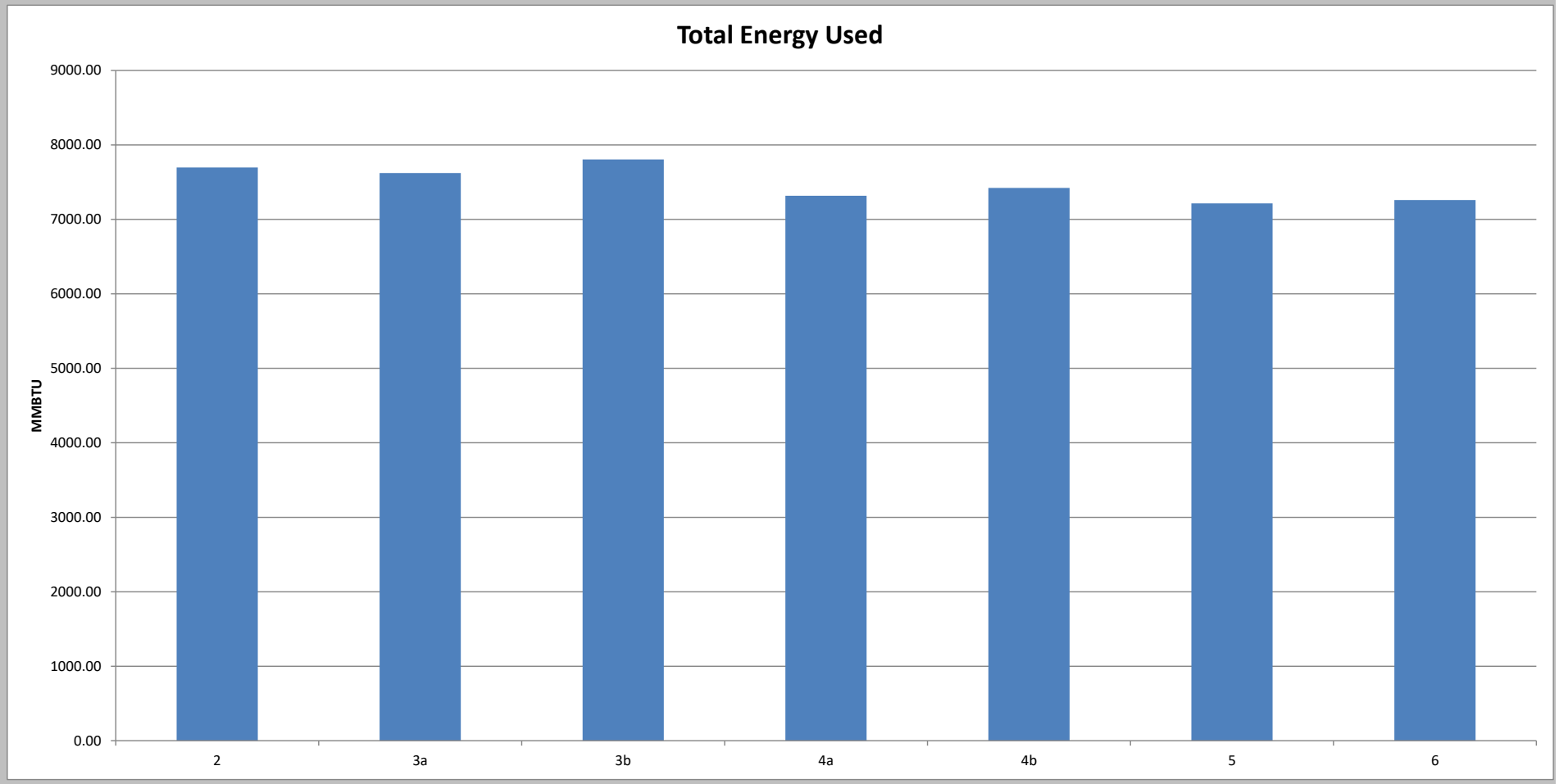
| Remedial Alternatives | GHG Emissions | Energy Usage | Water Usage | Electricity Usage | Onsite NOx Emissions | Onsite SOx Emissions | Onsite PM10 Emissions | Total NOx emissions | Total SOx Emissions | Total PM10 Emissions | *Accident Risk Fatality | *Accident Risk Injury |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | High | High | High | Low | High | High | High | High | Medium | High | Low | Low |
| 3a | High | High | Medium | Low | Low | Low | Low | High | High | Medium | Low | Low |
| 3b | High | High | Low | Low | Low | Low | Low | High | High | Medium | Low | Low |
| 4a | High | High | Medium | Low | Low | Low | Low | Medium | High | Medium | Low | Low |
| 4b | High | High | Medium | Low | Low | Low | Low | High | High | Medium | High | High |
| 5 | Medium | High | Medium | Low | Low | Low | Low | Medium | High | Low | Medium | High |
| 6 | High | High | Low | Low | Low | Low | Low | High | High | Low | High | High |

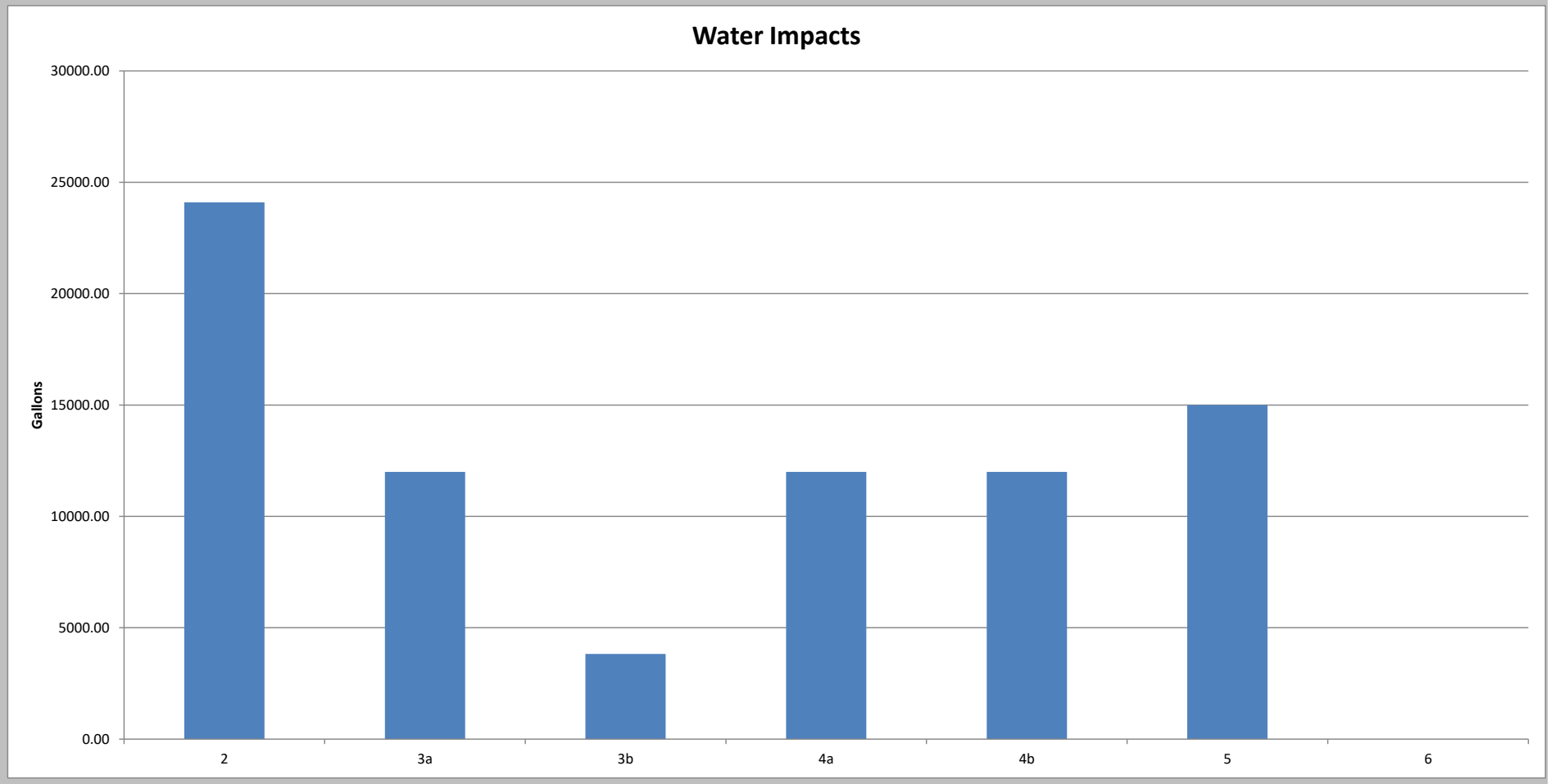
**Relative Impact (User Override)**

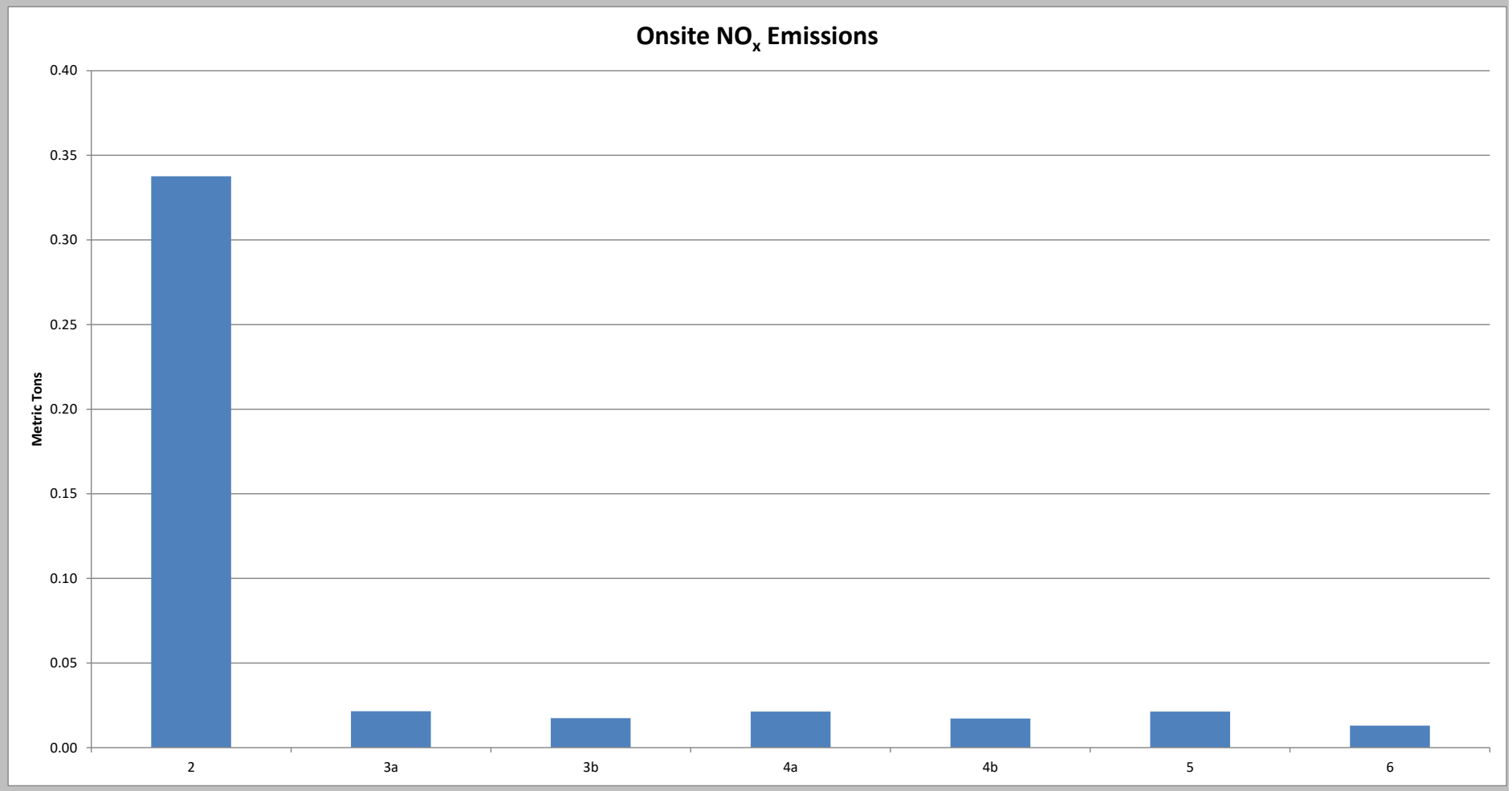
| Remedial Alternatives | GHG Emissions | Energy Usage | Water Usage | Electricity Usage | Onsite NOx Emissions | Onsite SOx Emissions | Onsite PM10 Emissions | Total NOx Emissions | Total SOx Emissions | Total PM10 Emissions | *Accident Risk Fatality | *Accident Risk Injury |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | High | High | High | Low | High | High | High | High | Medium | High | Low | Low |
| 3a | High | High | Medium | Low | Low | Low | Low | High | High | Medium | Low | Low |
| 3b | High | High | Low | Low | Low | Low | Low | High | High | Medium | Low | Low |
| 4a | High | High | Medium | Low | Low | Low | Low | Medium | High | Medium | Low | Low |
| 4b | High | High | Medium | Low | Low | Low | Low | High | High | Medium | High | High |
| 5 | Medium | High | Medium | Low | Low | Low | Low | Medium | High | Low | Medium | High |
| 6 | High | High | Low | Low | Low | Low | Low | High | High | Low | High | High |

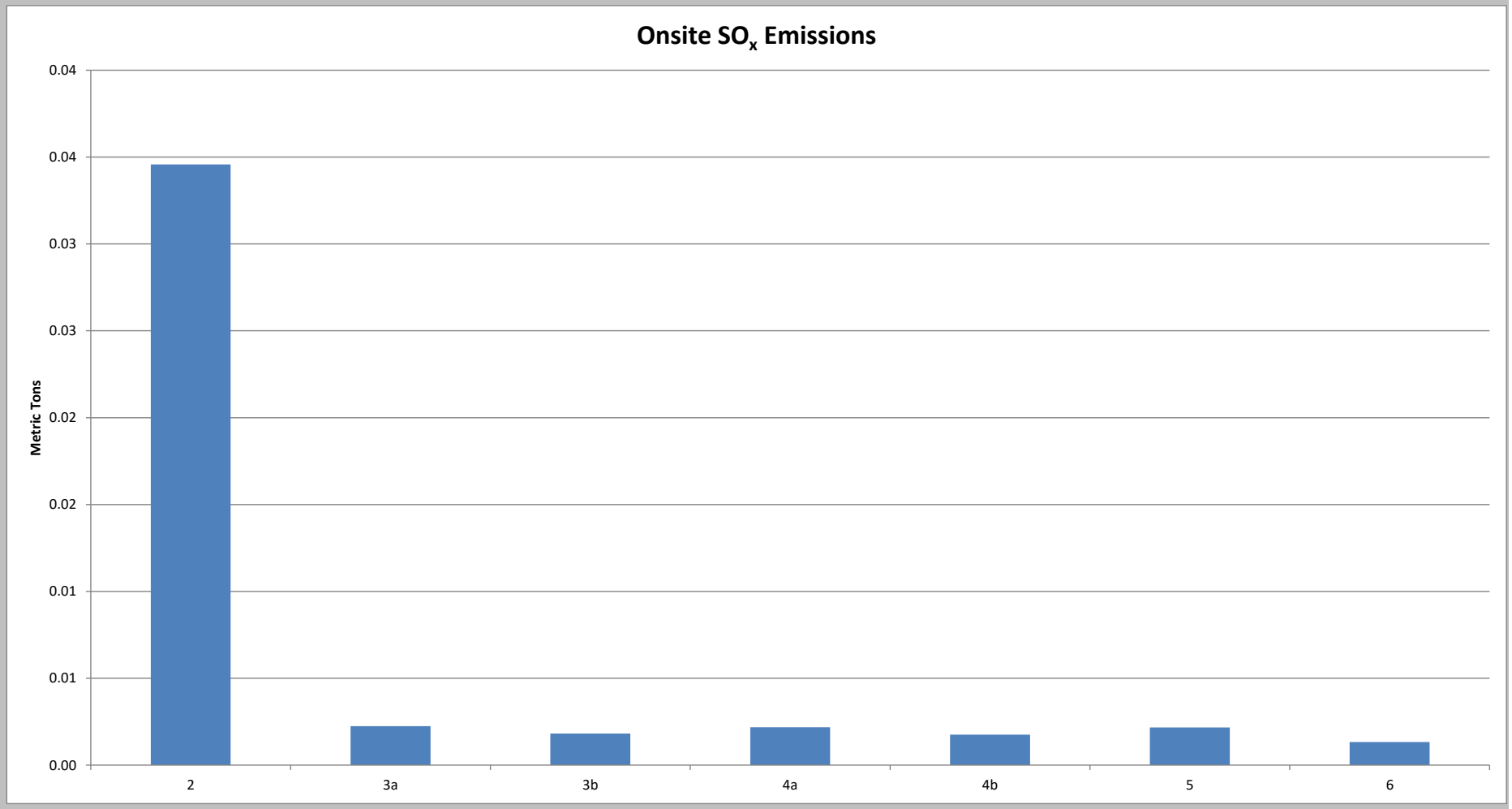
*Accident Risk is an estimate of how many accidents may occur. This risk is not the same as Cancer Risk, which is the probablity (for a single person) of getting cancer. Accident risk is not comparable to Cancer Risk due to inherent fundamental differences.

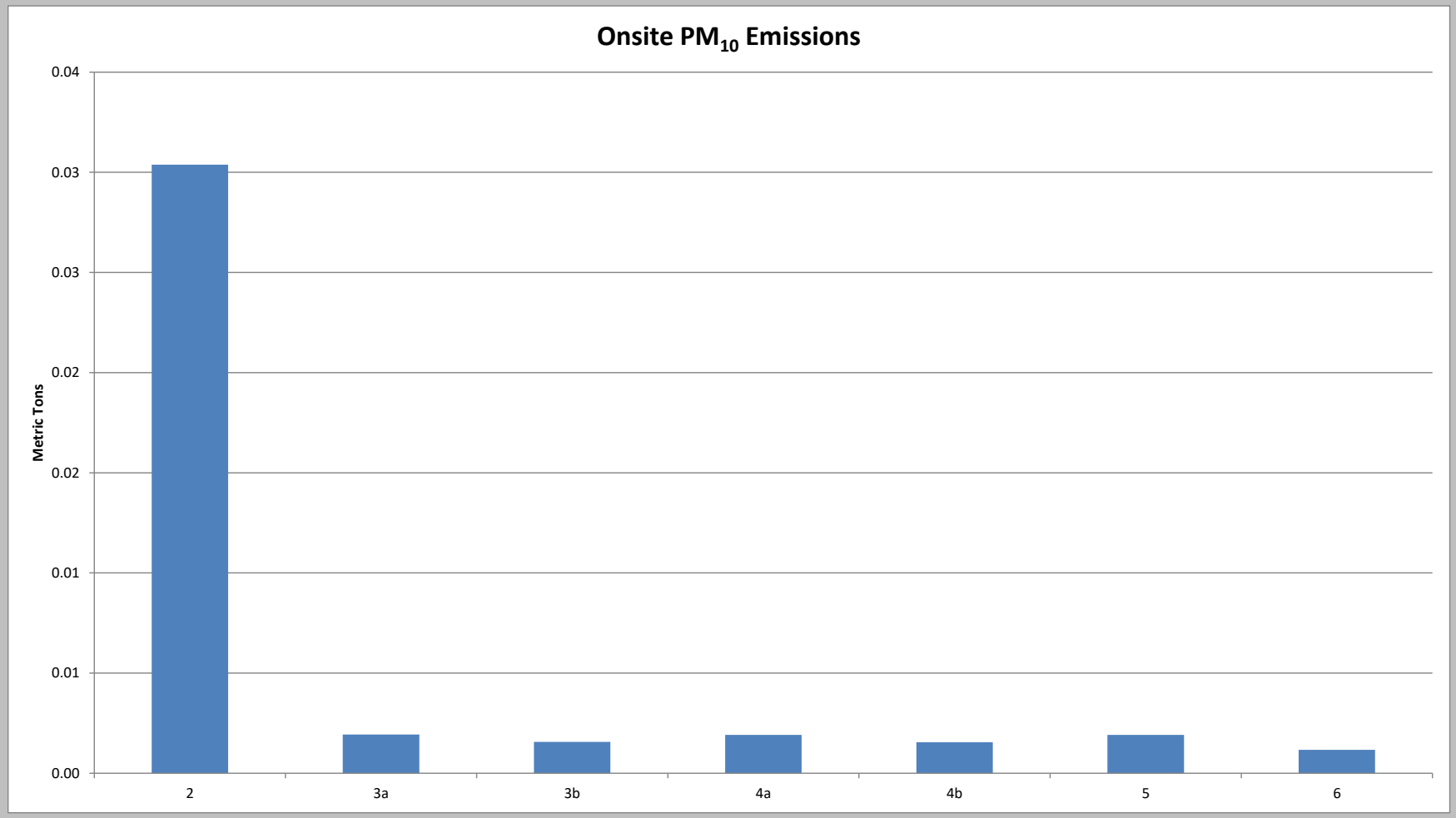

GHG Emissions
Metric Tons
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
2
3a
3b
4a
4b
5
6

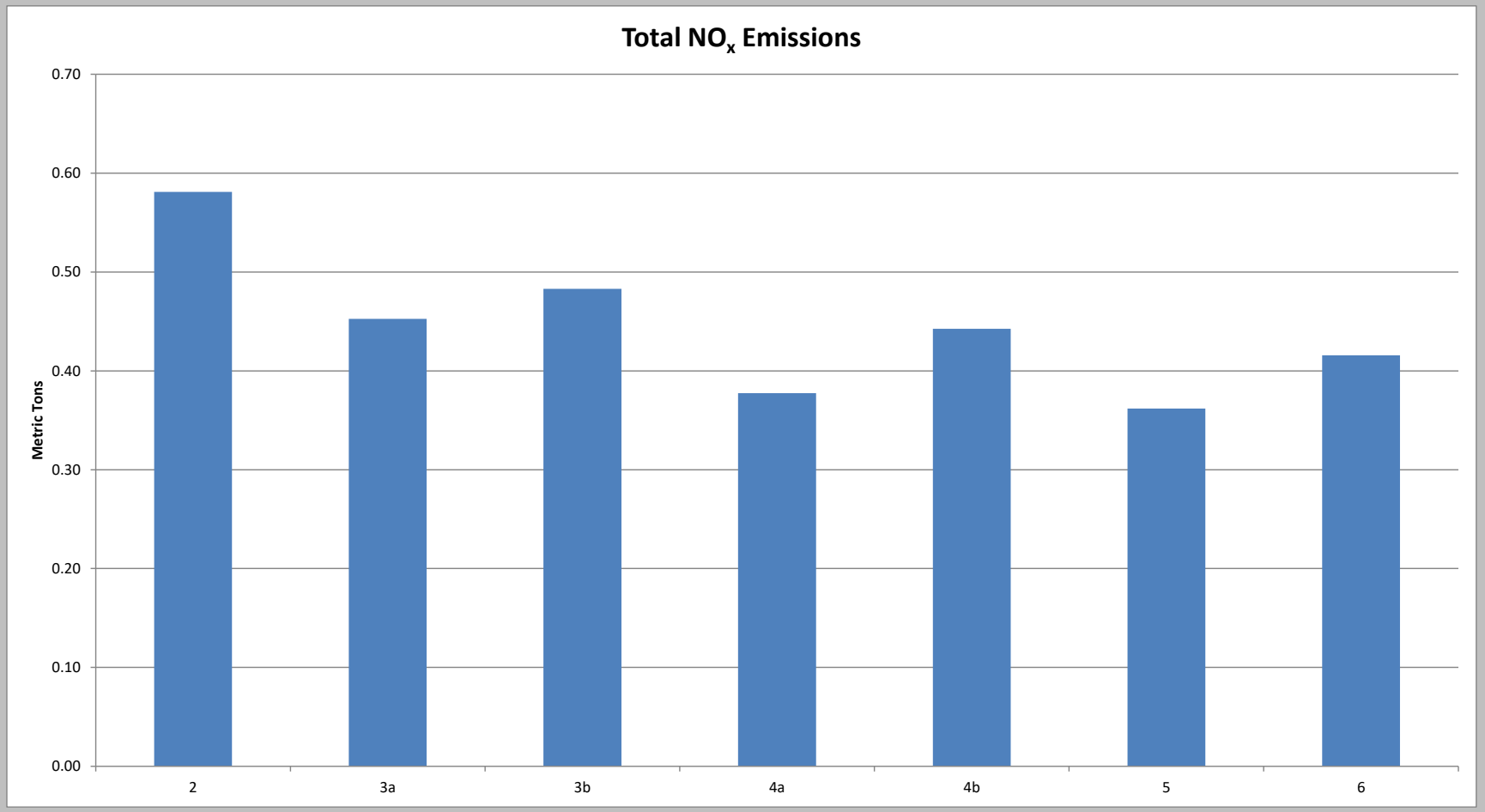

Total Energy Used
MMBTU
9000.00
8000.00
7000.00
6000.00
5000.00
4000.00
3000.00
2000.00
1000.00
0.00
2
3a
3b
4a
4b
5
6

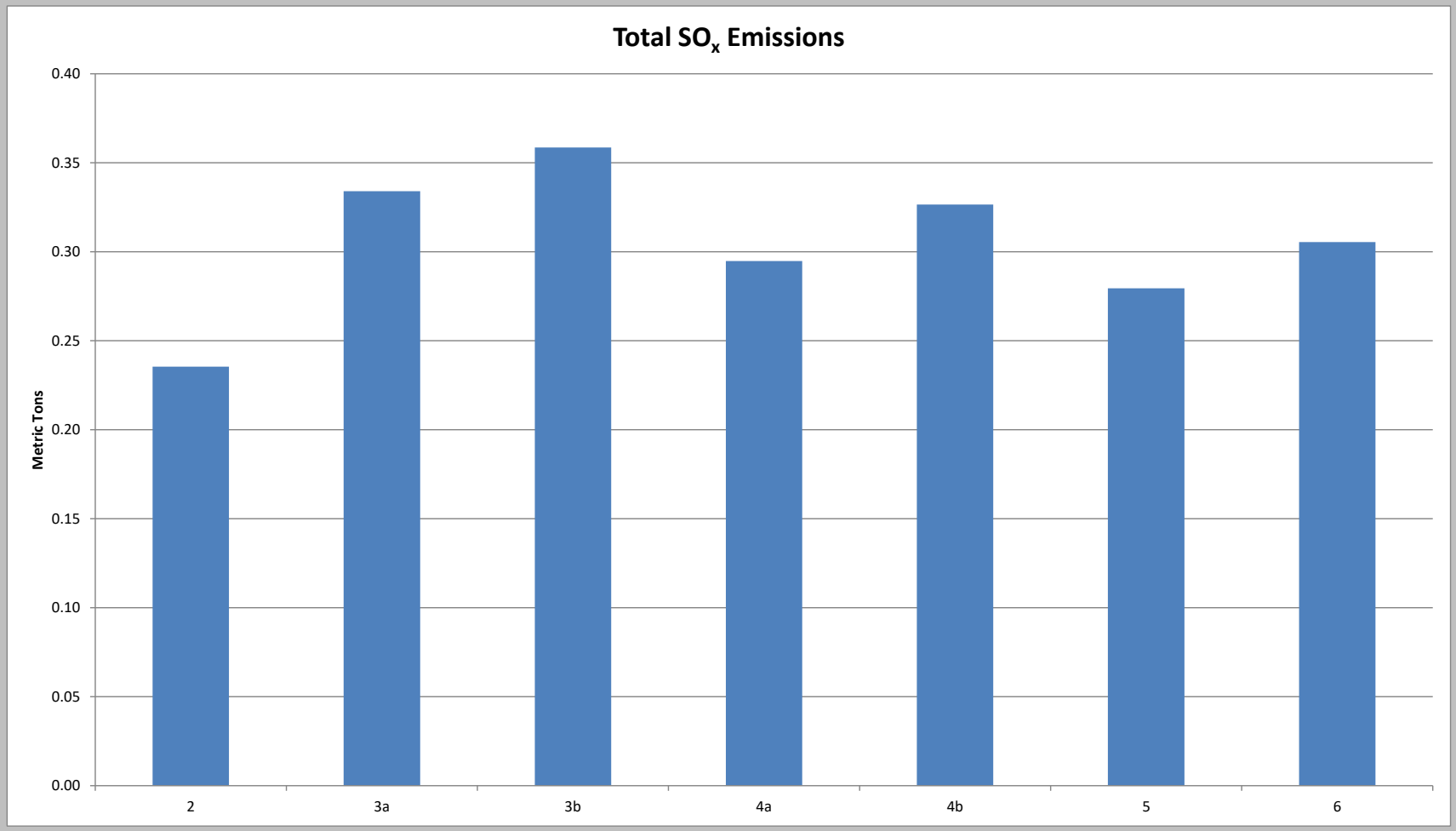

Water Impacts
Gallons
30000.00
25000.00
20000.00
15000.00
10000.00
5000.00
0.00
2
3a
3b
4a
4b
5
6

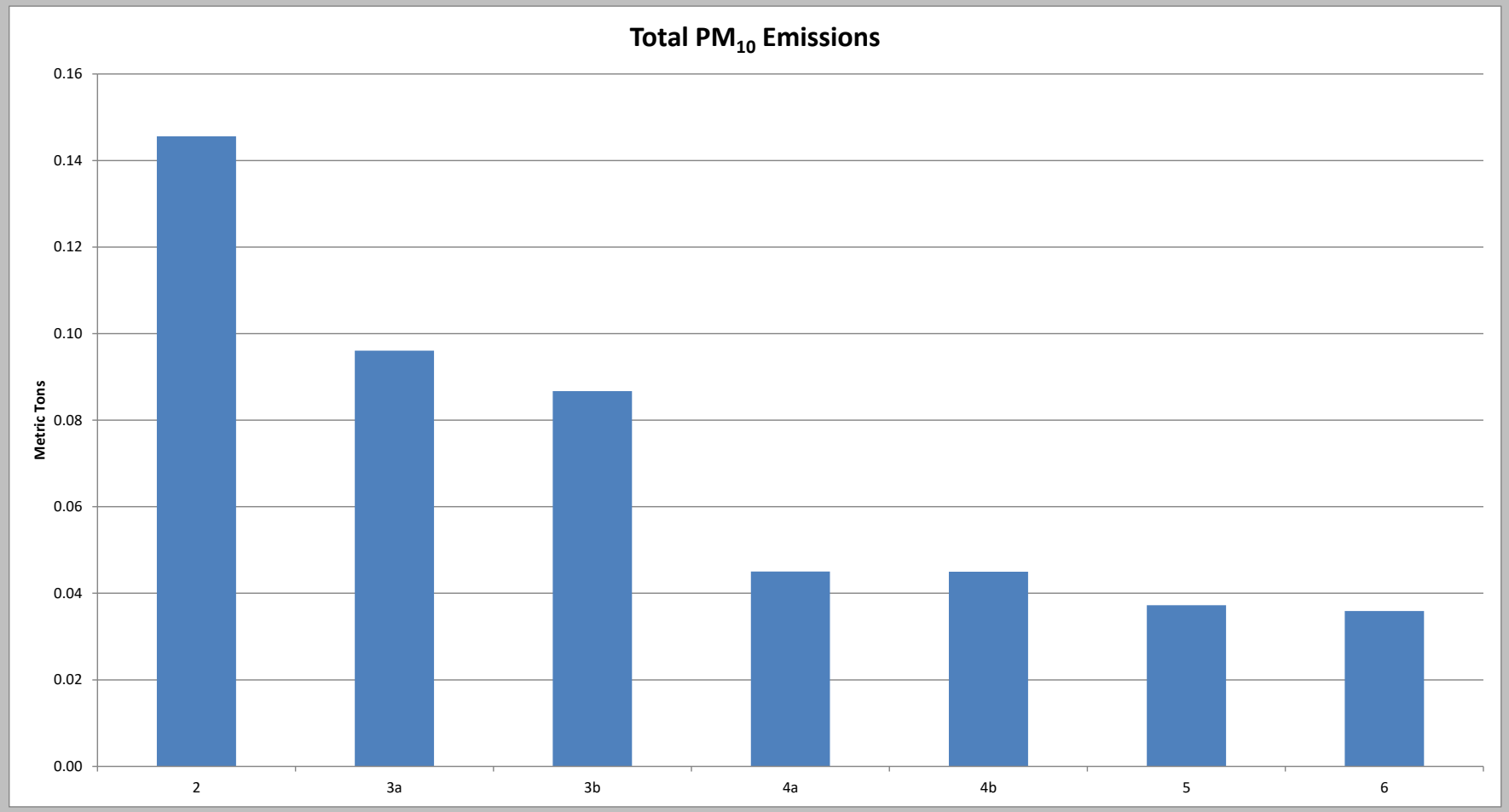

Onsite NOx Emissions
Metric Tons
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
2
3a
3b
4a
4b
5
6

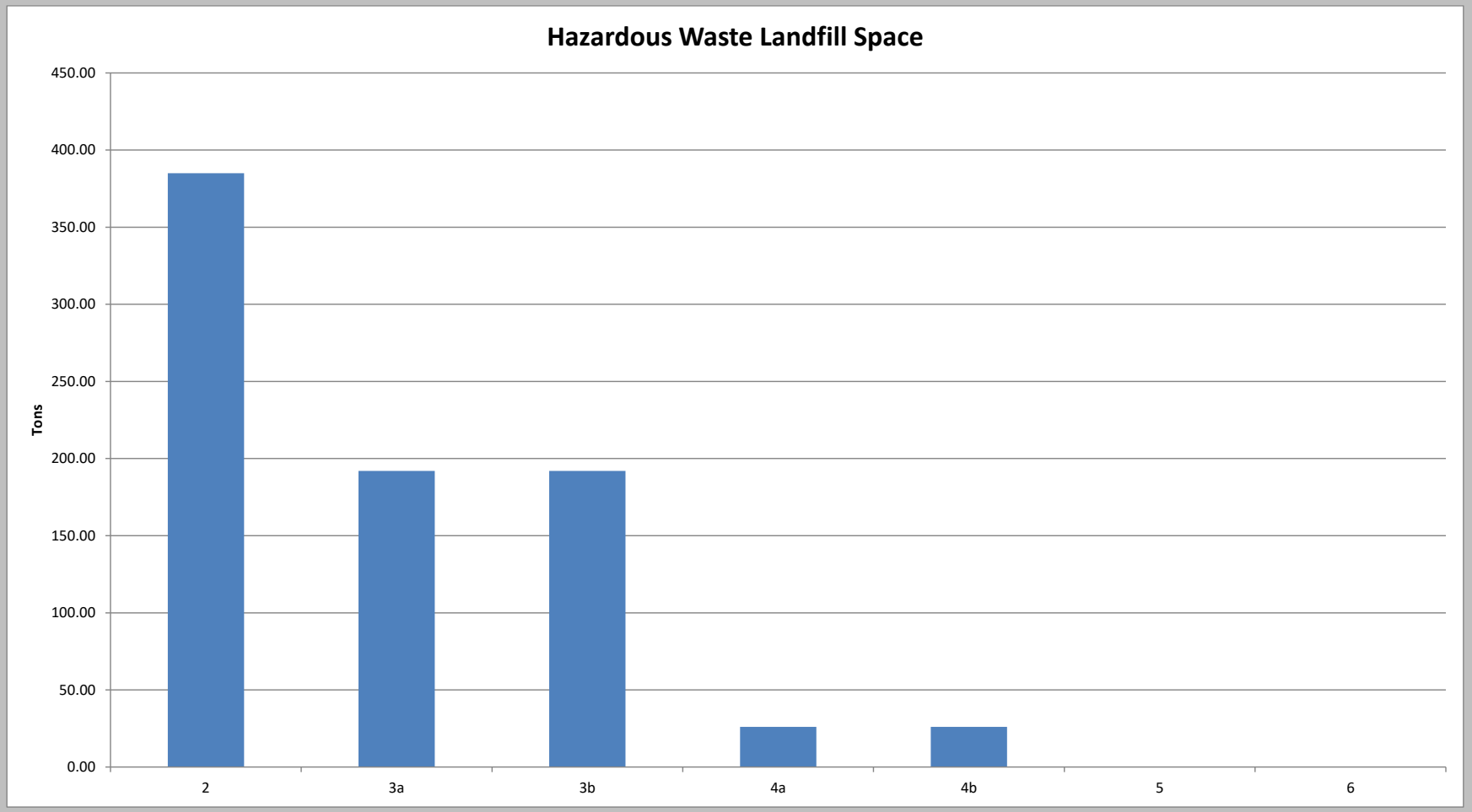

Onsite $SO_x$ Emissions
Metric Tons
0.04
0.04
0.03
0.03
0.02
0.02
0.01
0.01
0.00
2
3a
3b
4a
4b
5
6

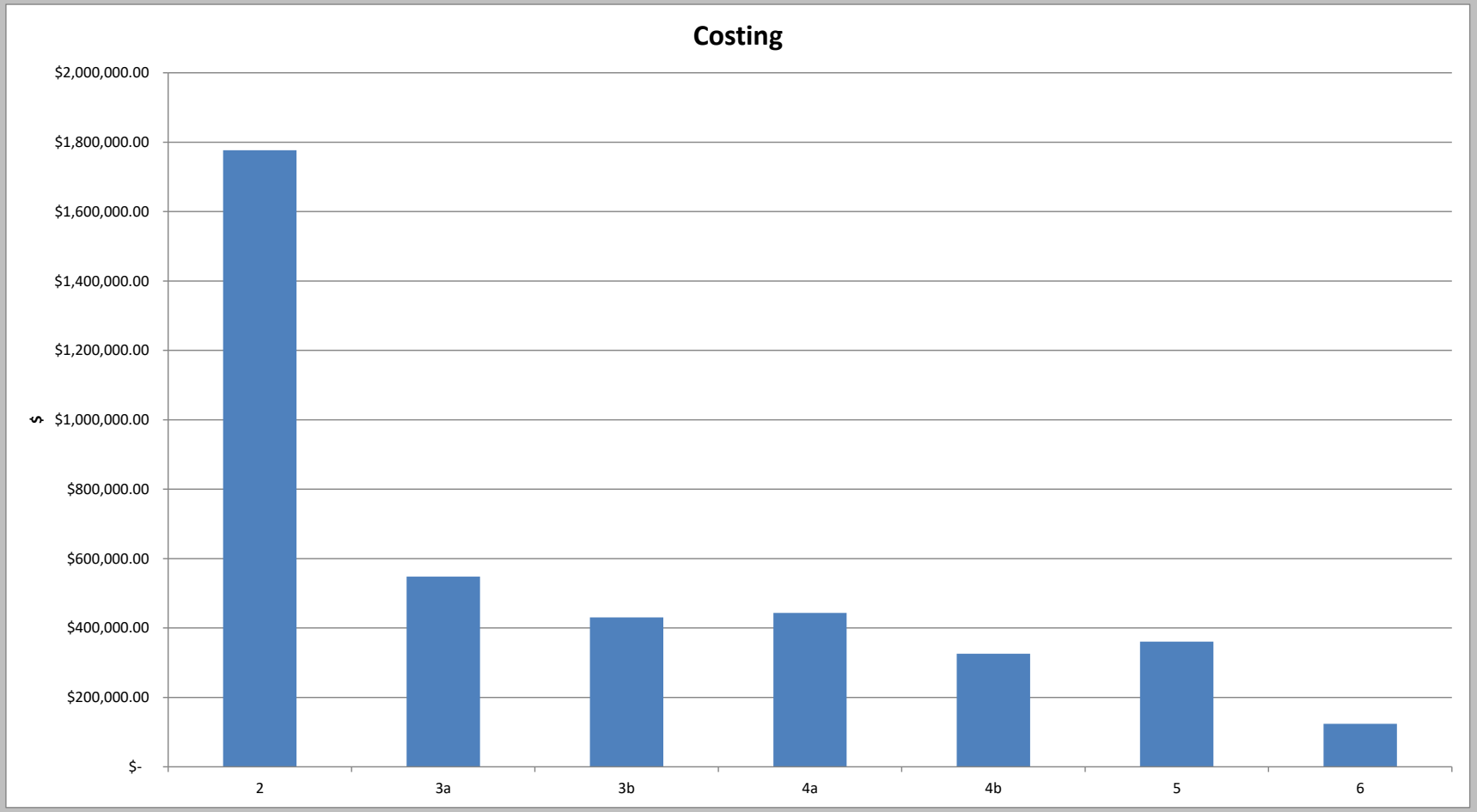

Onsite PM10 Emissions
Metric Tons
0.04
0.03
0.03
0.02
0.02
0.01
0.01
0.00
2
3a
3b
4a
4b
5
6

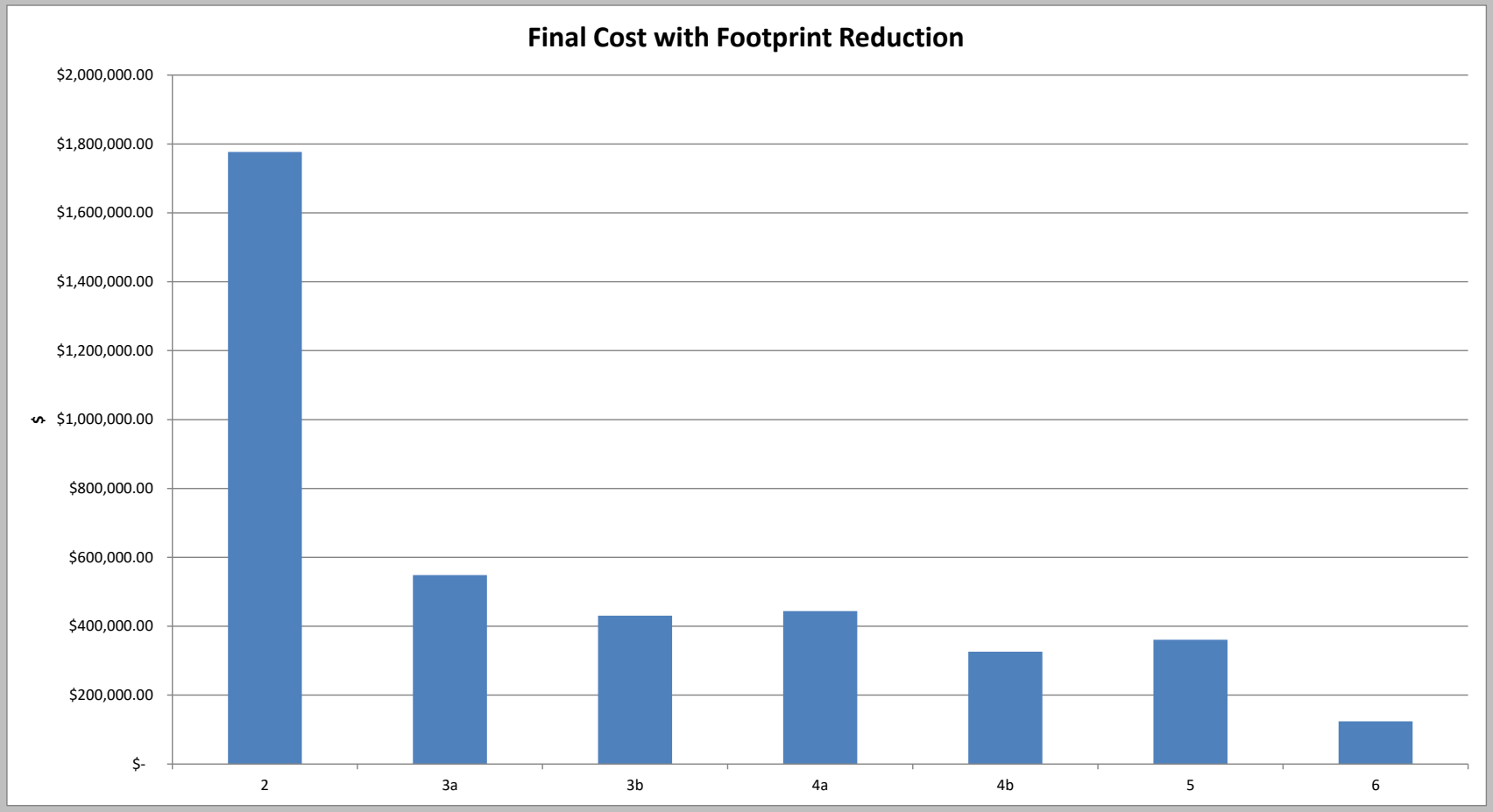

Total $NO_x$ Emissions
Metric Tons
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
2
3a
3b
4a
4b
5
6

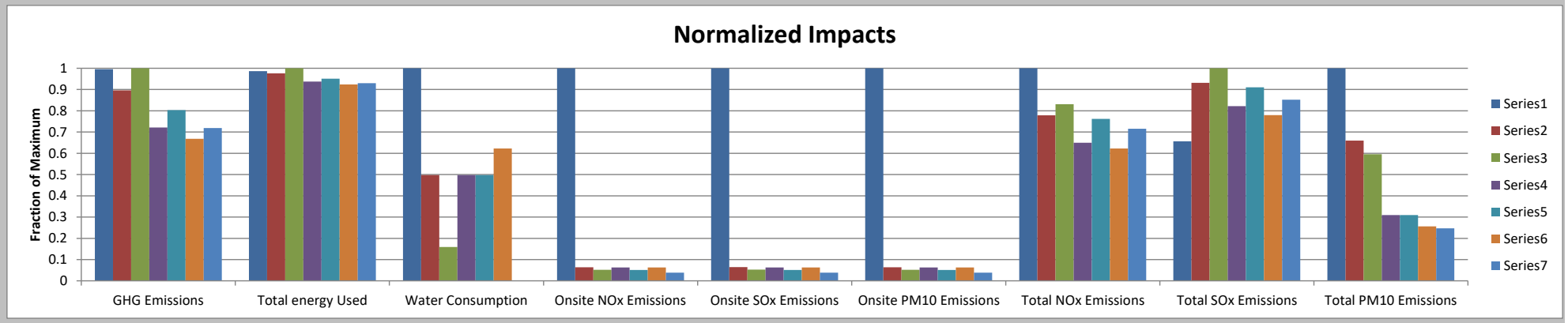

Total $SO_x$ Emissions
Metric Tons
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
2
3a
3b
4a
4b
5
6


Total PM10 Emissions
Metric Tons
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
2
3a
3b
4a
4b
5
6


Hazardous Waste Landfill Space
Tons
450.00
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
2
3a
3b
4a
4b
5
6


Costing
$2,000,000.00
$1,800,000.00
$1,600,000.00
$1,400,000.00
$1,200,000.00
$1,000,000.00
$800,000.00
$600,000.00
$400,000.00
$200,000.00
$-
$
2
3a
3b
4a
4b
5
6


Final Cost with Footprint Reduction
$2,000,000.00
$1,800,000.00
$1,600,000.00
$1,400,000.00
$1,200,000.00
$
$1,000,000.00
$800,000.00
$600,000.00
$400,000.00
$200,000.00
$-
2
3a
3b
4a
4b
5
6


Normalized Impacts
Fraction of Maximum
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
GHG Emissions
Total energy Used
Water Consumption
Onsite NOx Emissions
Onsite SOx Emissions
Onsite PM10 Emissions
Total NOx Emissions
Total SOx Emissions
Total PM10 Emissions
Series1
Series2
Series3
Series4
Series5
Series6
Series7

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 1 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 65152 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Installation | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | 4 | | | | | |
| Input depth of wells (ft) | 20 | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 80 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1 1/2 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | 1,000 | | | | | |
| Input total quantity of Gravel (kg) | 0 | | | | | |
| Input total quantity of Bentonite (kg) | 200 | | | | | |
| Input total quantity of Typical Cement (kg) | 1,900 | | | | | |
| Input total quantity of General Concrete (kg) | 0 | | | | | |
| Input total quantity of Steel (kg) | 360 | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Property Survey | Utility Survey | Structural Analysis | Regensis Mapping Tes | Surveyor Oversight | GW Sampling |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | Light truck | Light truck | Light truck | Light truck | SUVs | SUVs |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 270 | 270 | 600 | 270 | 270 | 270 |
| Input number of trips taken | 1 | 1 | 4 | 1 | 3 | 2 |
| Input number of travelers | 1 | 1 | 1 | 1 | 1 | 1 |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Storage Trailer | Construction Equipmer | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Diesel | Diesel | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | 270 | 270 | | | | |
| Input weight of equipment transported per truck load (tons) | 2.50 | 3.50 | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Well Construction | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | 4 | | | | | |
| Choose drilling method from drop down menu | Hollow Stem Auger | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | 4.00 | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (hr) (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | Soil Samples | VOC GW | PFAS GW | MNA GW | Analysis 5 | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 1,800.00 | 595.00 | 3,150.00 | 2,100.00 | | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 2 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 1668153 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | | | | | | |
| Input total quantity of Gravel (kg) | | | | | | |
| Input total quantity of Bentonite (kg) | | | | | | |
| Input total quantity of Typical Cement (kg) | | | | | | |
| Input total quantity of General Concrete (kg) | | | | | | |
| Input total quantity of Steel (kg) | | | | | | |

| TREATMENT CHEMICALS & MATERIALS | S-MZVI | AquiFix | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | 1 | 1 | | | | |
| Choose material type from drop down menu | ZVI | Vegetable Oil | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | 2525 | 8640 | | | | |
| Input number of injections per injection point | 1 | 1 | | | | |

| TREATMENT MEDIA | PlumeStop | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | 2,580 | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Clean Fill | Crushed Stone | Asphalt | Top Soil | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Soil | Gravel | Asphalt | Soil | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | cubic feet | cubic feet | cubic feet | cubic feet | pounds | pounds |
| Input material quantity | 6,062 | 324 | 317 | 243 | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Subcontractor | Oversight | Oversight injection | Regenesis | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | Light truck | SUVs | SUVs | Light truck | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Diesel | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 300 | 600 | 600 | 300 | | |
| Input number of trips taken | 5 | 3 | 6 | 7 | | |
| Input number of travelers | 1 | 1 | 1 | 1 | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Storage Trailer | Excavator and Drill Rig | Clean Fill | Gravel transport | Asphalt | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Diesel | Diesel | Diesel | Diesel | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | Yes | Yes | Yes | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | 270 | 270 | 563 | 50 | 50 | |
| Input weight of equipment transported per truck load (tons) | 2.00 | 2.50 | 15.00 | 15.00 | 15.00 | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Excavator | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Excavator | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | 257 | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Geoprobe | Rotosonic | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | 66 | 124 | | | | |
| Choose drilling method from drop down menu | Direct Push | Sonic Drilling | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | 4.00 | 4.00 | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Paver | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Paver | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | 1,266 | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | Round 1: Soil samples | Round 1: GW | Post Round 1: VOCs | Post Round 1: PFAS | Round 2: Soils | Round 2: GW |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 1,200.00 | 425.00 | 595.00 | 3,150.00 | 1,200.00 | 425.00 |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | 15.0 | | | | | |
| Choose fuel used from drop down menu | Diesel | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | 26.0 | | | | | |
| Input number of miles per trip | 650.0 | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | 385.0 | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

| WATER CONSUMPTION | Injection Water | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | 24100 | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 3 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 43690 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | | | | | | |
| Input total quantity of Gravel (kg) | | | | | | |
| Input total quantity of Bentonite (kg) | | | | | | |
| Input total quantity of Typical Cement (kg) | | | | | | |
| Input total quantity of General Concrete (kg) | | | | | | |
| Input total quantity of Steel (kg) | | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Years 1-5 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | SUVs | Cars | Cars | Cars | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 300 | | | | | |
| Input number of trips taken | 20 | | | | | |
| Input number of travelers | 1 | | | | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | | | | | | |
| Input weight of equipment transported per truck load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | | | | | | |
| Choose drilling method from drop down menu | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | VOCs | PFAS | MNA Parameters | Analysis 4 | Analysis 5 | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 5,950.00 | 31,500.00 | 6,000.00 | | | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

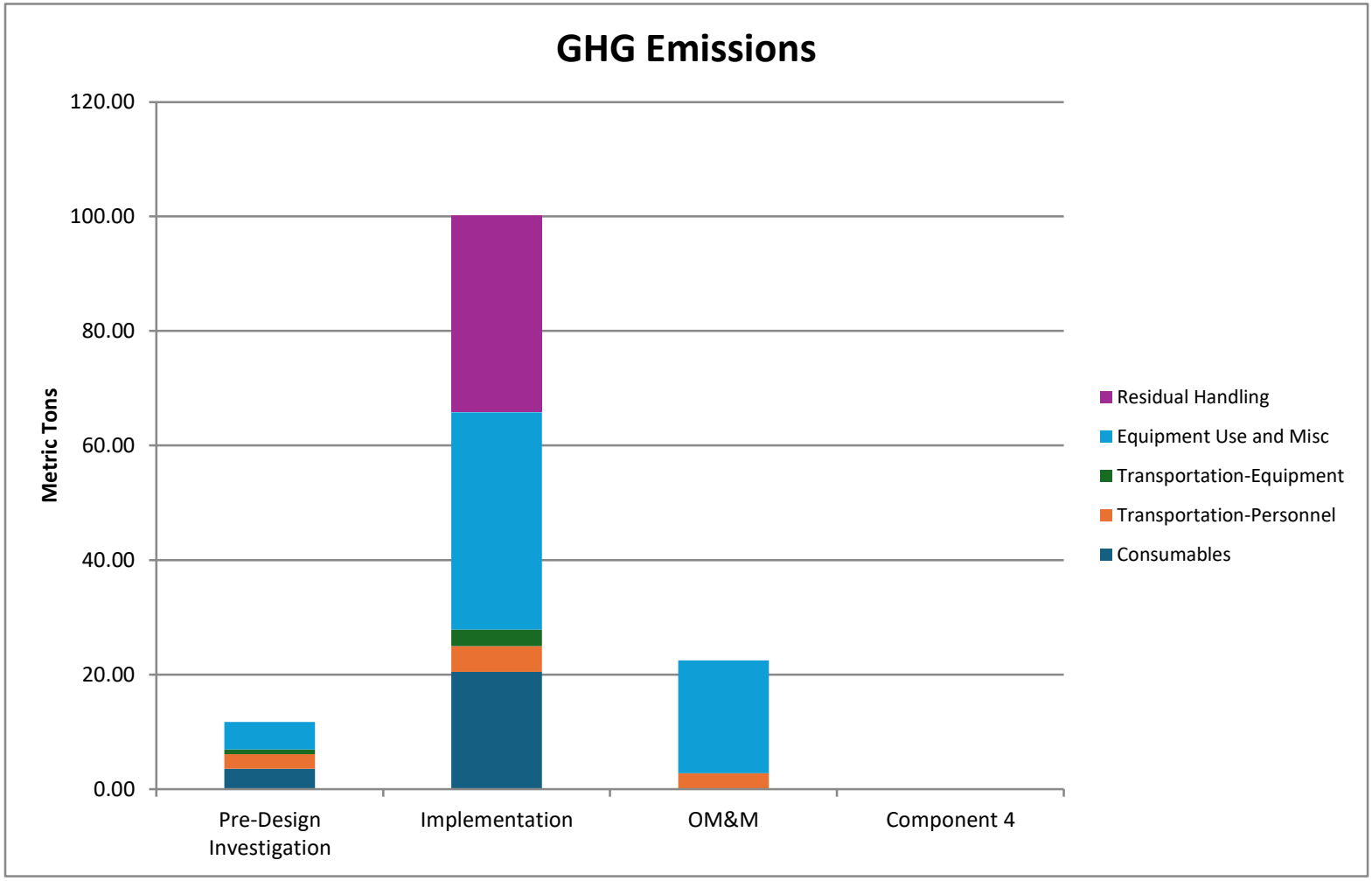
| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

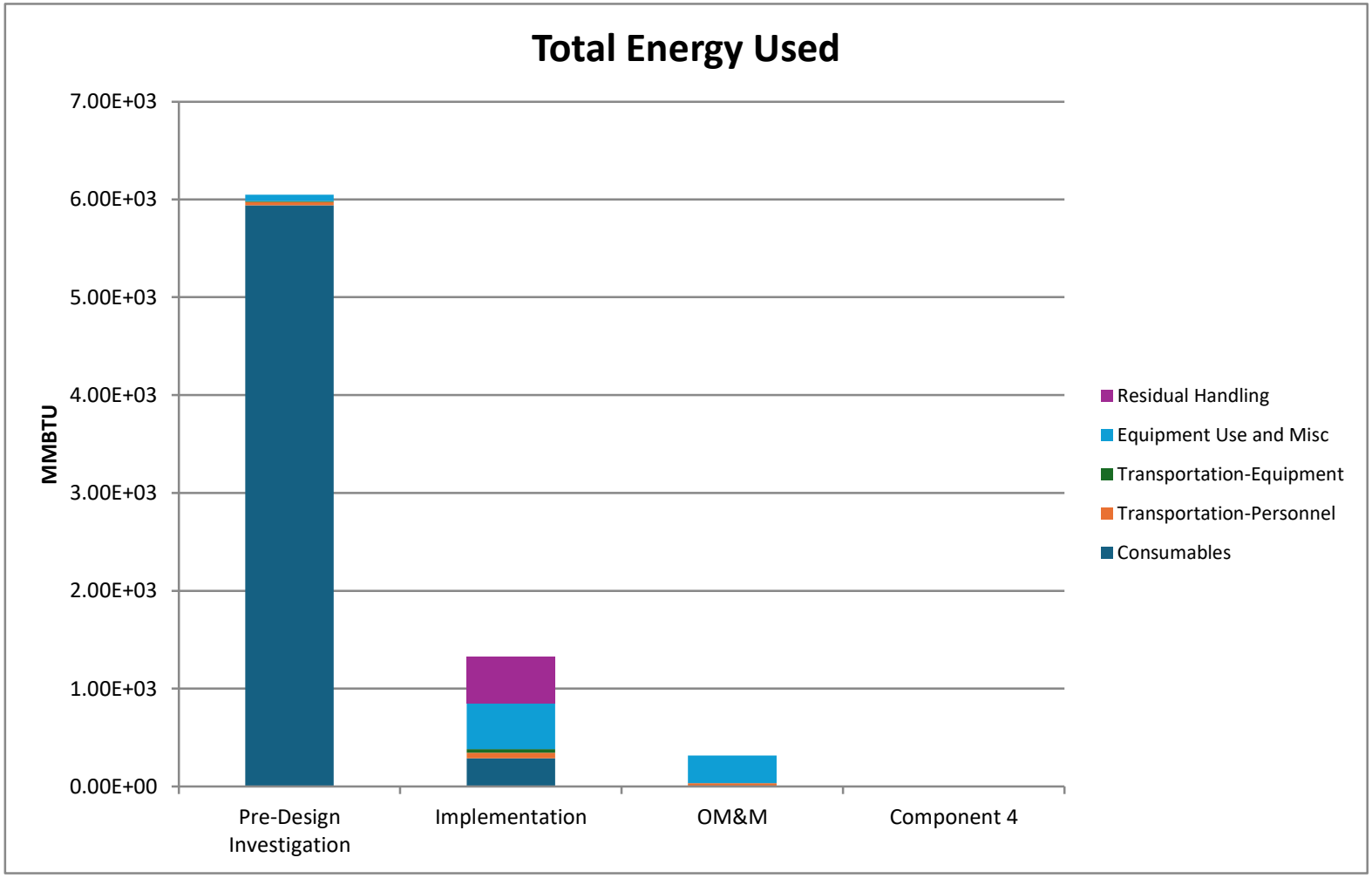
| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

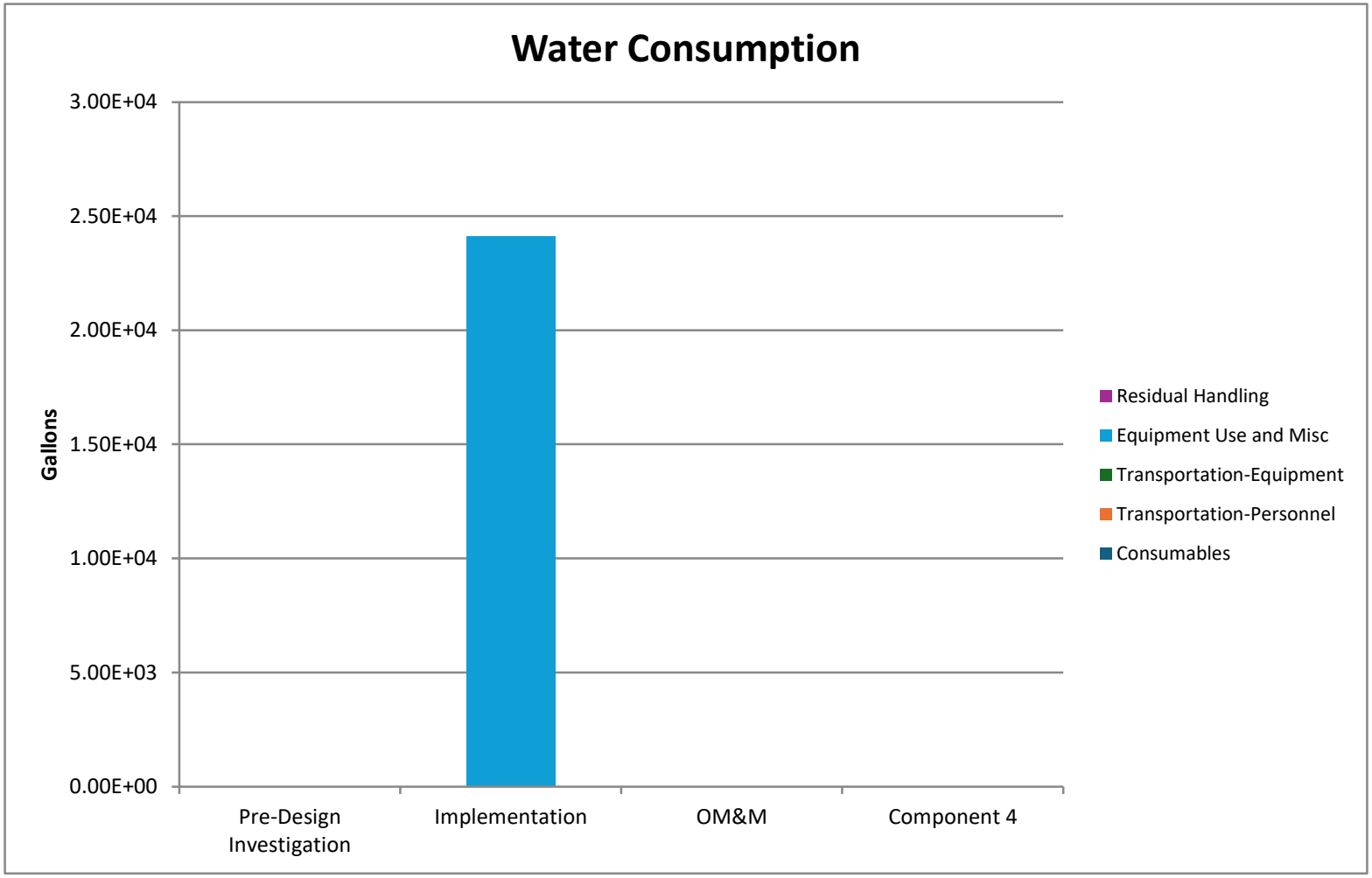
## Sustainable Remediation - Environmental Footprint Summary 2

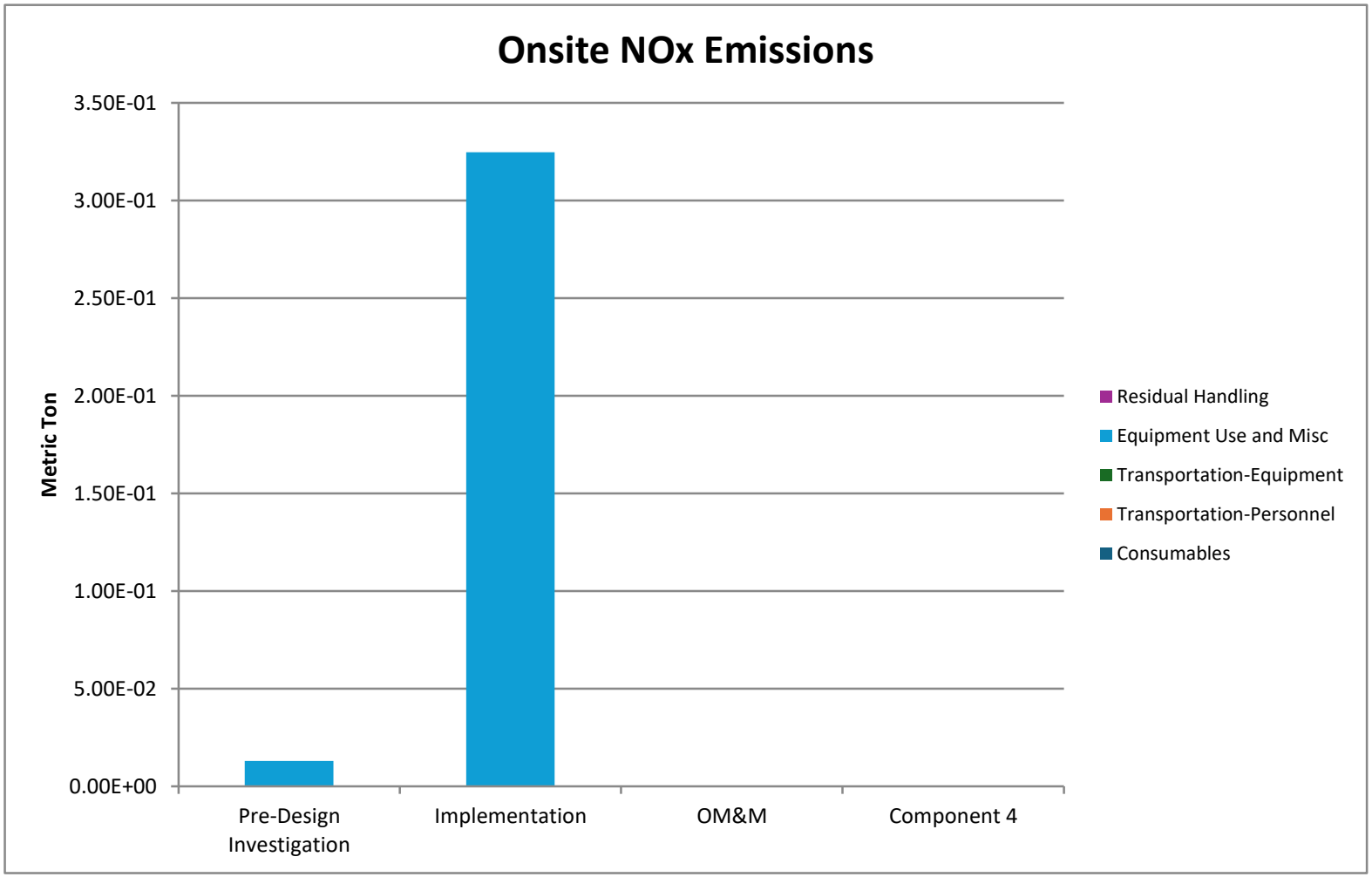
| Phase | Activities | GHG Emissions | Total Energy Used | Water Consumption | Electricity Usage | Onsite NOx Emissions | Onsite SOx Emissions | Onsite PM10 Emissions | Total NOx Emissions | Total SOx Emissions | Total PM10 Emissions | Accident Risk Fatality | Accident Risk Injury |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | metric ton | MMBTU | gallons | MWH | metric ton | metric ton | metric ton | metric ton | metric ton | metric ton | | |
| Pre-Design Investigation | Consumables | 3.58 | 5.9E+03 | NA | NA | NA | NA | NA | 7.2E-03 | 1.0E-02 | 1.3E-03 | NA | NA |
| | Transportation-Personnel | 2.54 | 3.2E+01 | NA | NA | NA | NA | NA | 9.9E-04 | 3.3E-05 | 1.5E-04 | 3.8E-05 | 3.0E-03 |
| | Transportation-Equipment | 0.79 | 1.0E+01 | NA | NA | NA | NA | NA | 2.5E-04 | 4.4E-06 | 2.2E-05 | 4.2E-06 | 3.4E-04 |
| | Equipment Use and Misc | 4.83 | 6.6E+01 | 0.0E+00 | 0.0E+00 | 1.3E-02 | 1.3E-03 | 1.2E-03 | 3.0E-02 | 1.4E-02 | 2.7E-03 | 1.5E-06 | 3.7E-04 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 11.74 | 6.05E+03 | 0.00E+00 | 0.00E+00 | 1.30E-02 | 1.33E-03 | 1.17E-03 | 3.88E-02 | 2.42E-02 | 4.18E-03 | 4.34E-05 | 3.74E-03 |
| Implementation | Consumables | 20.46 | 2.9E+02 | NA | NA | NA | NA | NA | 4.6E-02 | 6.9E-02 | 2.2E-02 | NA | NA |
| | Transportation-Personnel | 4.51 | 5.6E+01 | NA | NA | NA | NA | NA | 1.6E-03 | 4.6E-05 | 2.8E-04 | 7.0E-05 | 5.7E-03 |
| | Transportation-Equipment | 2.89 | 3.8E+01 | NA | NA | NA | NA | NA | 9.1E-04 | 1.7E-05 | 8.0E-05 | 9.4E-06 | 7.6E-04 |
| | Equipment Use and Misc | 37.92 | 4.7E+02 | 2.4E+04 | 0.0E+00 | 3.2E-01 | 3.3E-02 | 2.9E-02 | 3.6E-01 | 5.7E-02 | 3.4E-02 | 7.0E-05 | 1.8E-02 |
| | Residual Handling | 34.36 | 4.7E+02 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 3.4E-02 | 1.3E-02 | 7.1E-02 | 1.3E-04 | 1.1E-02 |
| | Sub-Total | 100.14 | 1.32E+03 | 2.41E+04 | 0.00E+00 | 3.25E-01 | 3.32E-02 | 2.92E-02 | 4.44E-01 | 1.39E-01 | 1.26E-01 | 2.81E-04 | 3.45E-02 |
| OM&M | Consumables | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | NA | NA |
| | Transportation-Personnel | 2.76 | 3.5E+01 | NA | NA | NA | NA | NA | 8.5E-04 | 3.6E-05 | 1.7E-04 | 4.7E-05 | 3.8E-03 |
| | Transportation-Equipment | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Equipment Use and Misc | 19.71 | 2.8E+02 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 9.5E-02 | 7.1E-02 | 7.9E-03 | 0.0E+00 | 0.0E+00 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 22.47 | 3.17E+02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.54E-02 | 7.10E-02 | 8.06E-03 | 4.68E-05 | 3.77E-03 |
| Component 4 | Consumables | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | NA | NA |
| | Transportation-Personnel | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Transportation-Equipment | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Equipment Use and Misc | 0.00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 0.00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Total** | | **1.3E+02** | **7.7E+03** | **2.4E+04** | **0.0E+00** | **3.4E-01** | **3.5E-02** | **3.0E-02** | **5.8E-01** | **2.3E-01** | **1.4E-01** | **3.7E-04** | **4.2E-02** |

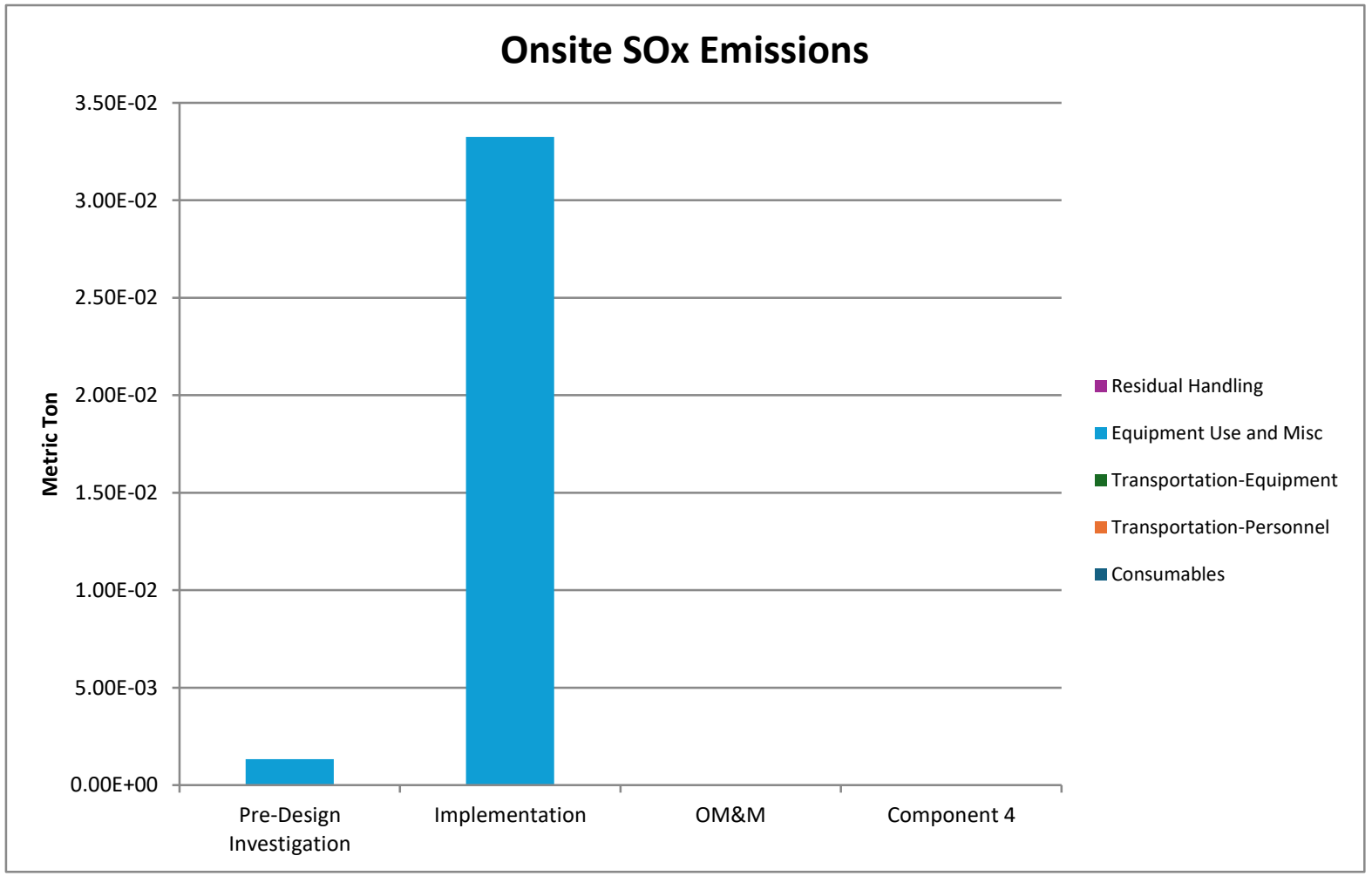
| Remedial Alternative Phase | Non-Hazardous Waste Landfill Space | Hazardous Waste Landfill Space | Topsoil Consumption | Costing | Lost Hours - Injury | Percent electricity from renewable sources | Total Cost with Footprint Reduction |
|---|---|---|---|---|---|---|---|
| | tons | tons | cubic yards | $ | | % | |
| Pre-Design Investigation | 0.0E+00 | 0.0E+00 | 0.0E+00 | 65,152 | 3.0E-02 | 0.0% | $1,776,995 |
| Implementation | 3.9E+02 | 0.0E+00 | 0.0E+00 | 1,668,153 | 2.8E-01 | 0.0% | |
| OM&M | 0.0E+00 | 0.0E+00 | 0.0E+00 | 43,690 | 3.0E-02 | 0.0% | |
| Component 4 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0 | 0.0E+00 | 0.0% | |
| Total | **3.9E+02** | **0.0E+00** | **0.0E+00** | **$1,776,995** | **3.4E-01** | **0.0%** | |

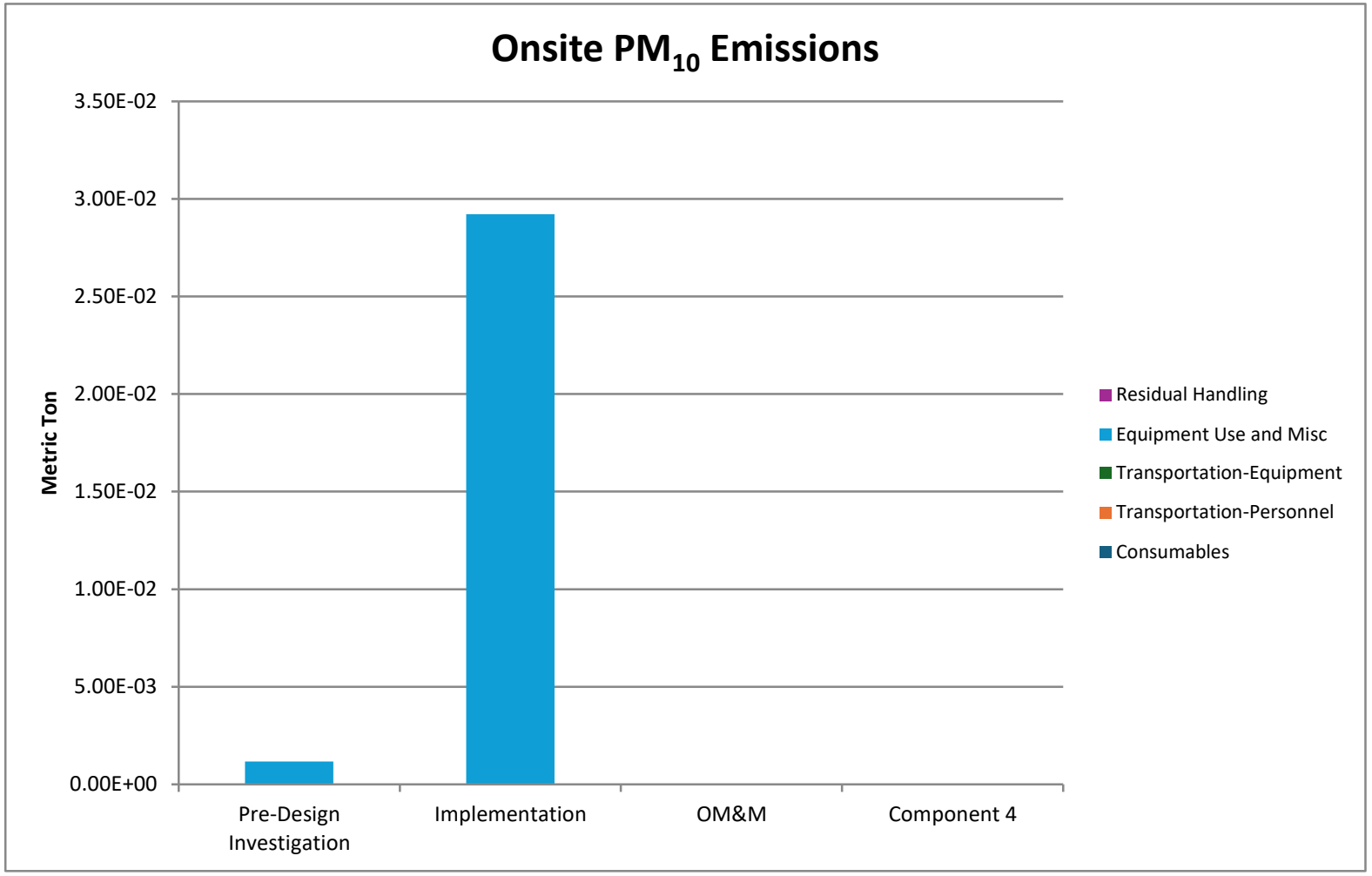

GHG Emissions
120.00
100.00
80.00
60.00
40.00
20.00
0.00
Metric Tons
Pre-Design Investigation
Implementation
OM&M
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

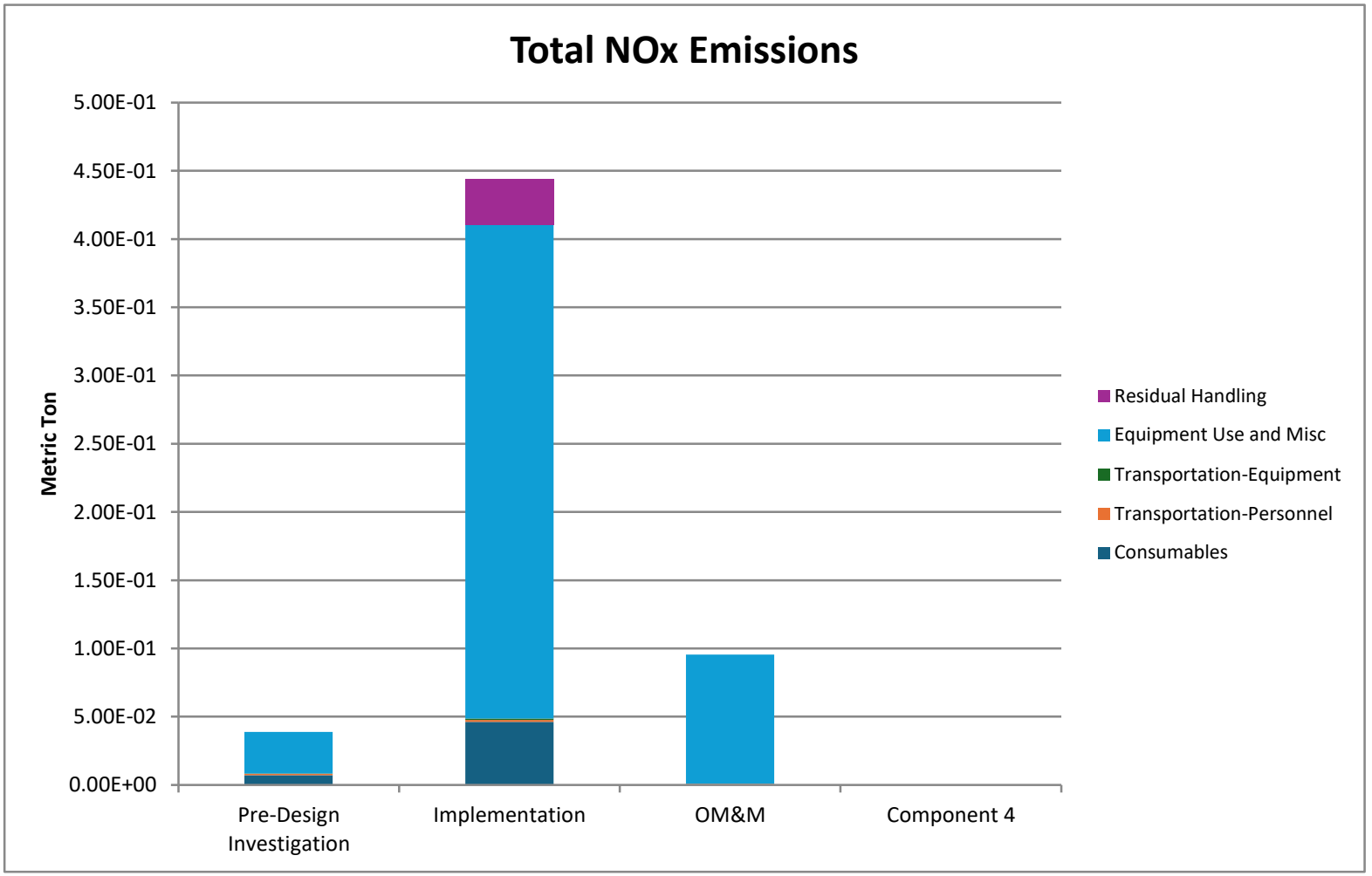

Total Energy Used
MMBTU
7.00E+03
6.00E+03
5.00E+03
4.00E+03
3.00E+03
2.00E+03
1.00E+03
0.00E+00
Pre-Design Investigation
Implementation
OM&M
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

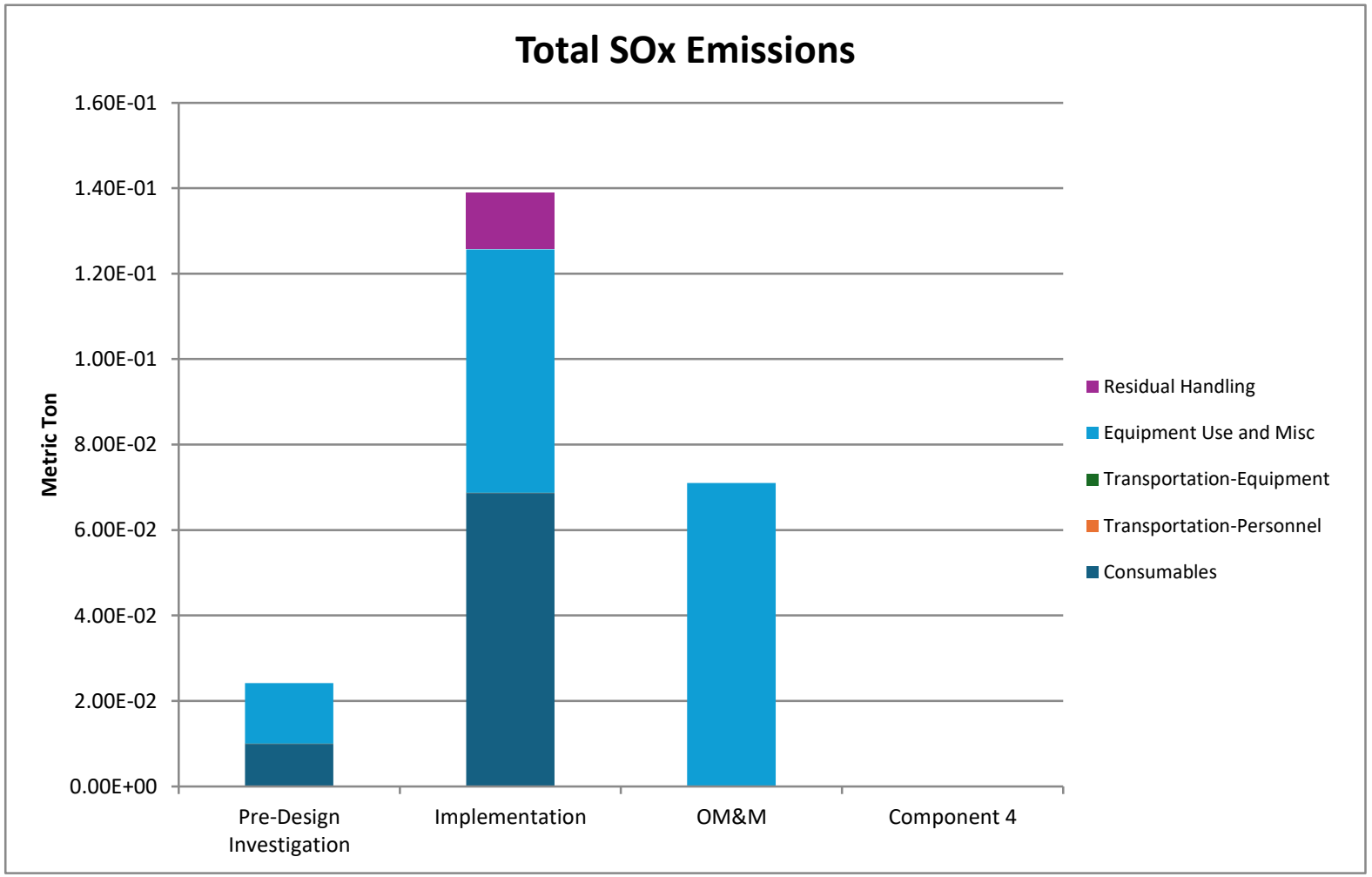

Water Consumption
Gallons
3.00E+04
2.50E+04
2.00E+04
1.50E+04
1.00E+04
5.00E+03
0.00E+00
Pre-Design Investigation
Implementation
OM&M
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

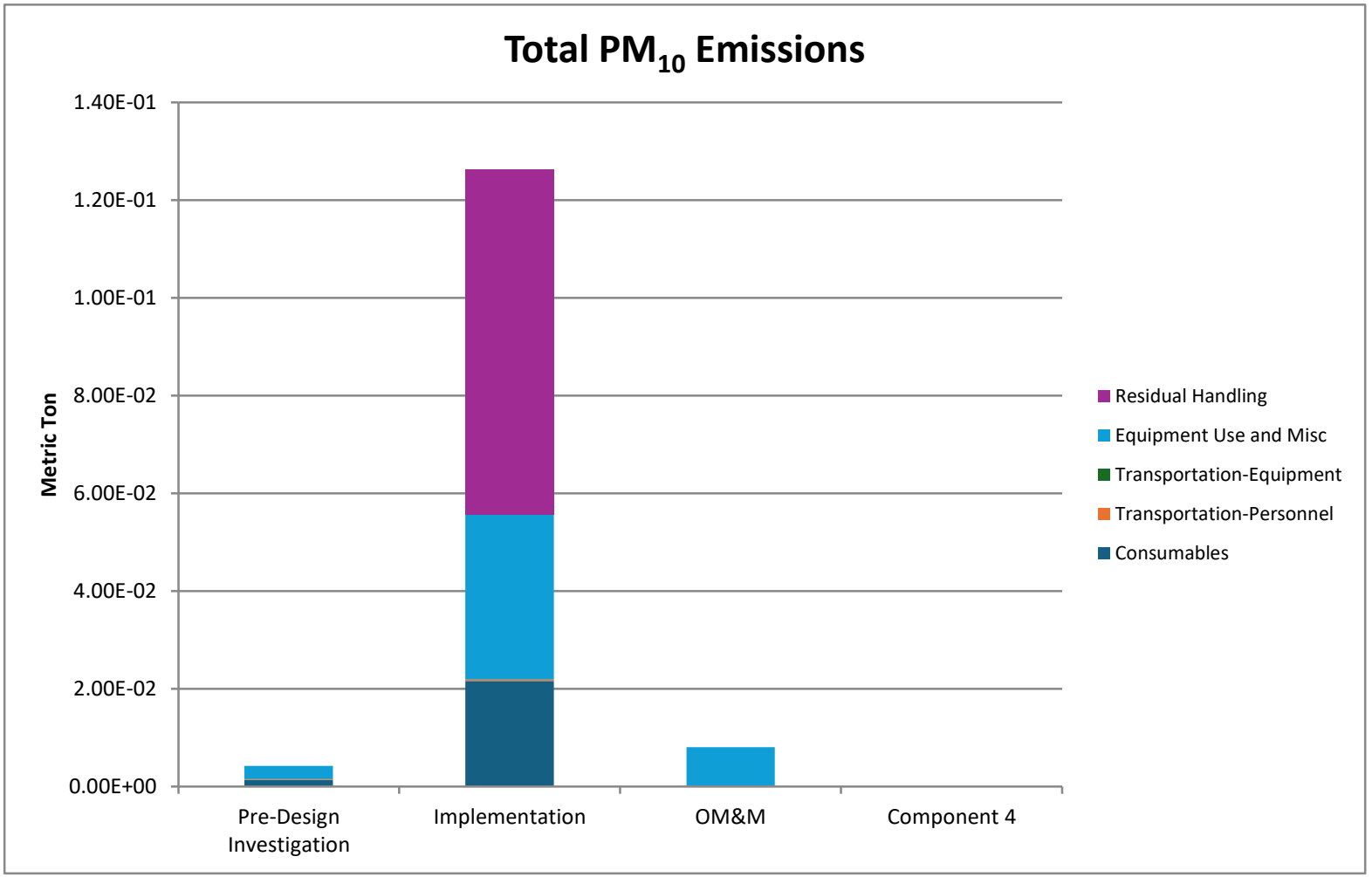

Onsite NOx Emissions
Metric Ton
3.50E-01
3.00E-01
2.50E-01
2.00E-01
1.50E-01
1.00E-01
5.00E-02
0.00E+00
Pre-Design Investigation
Implementation
OM&M
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

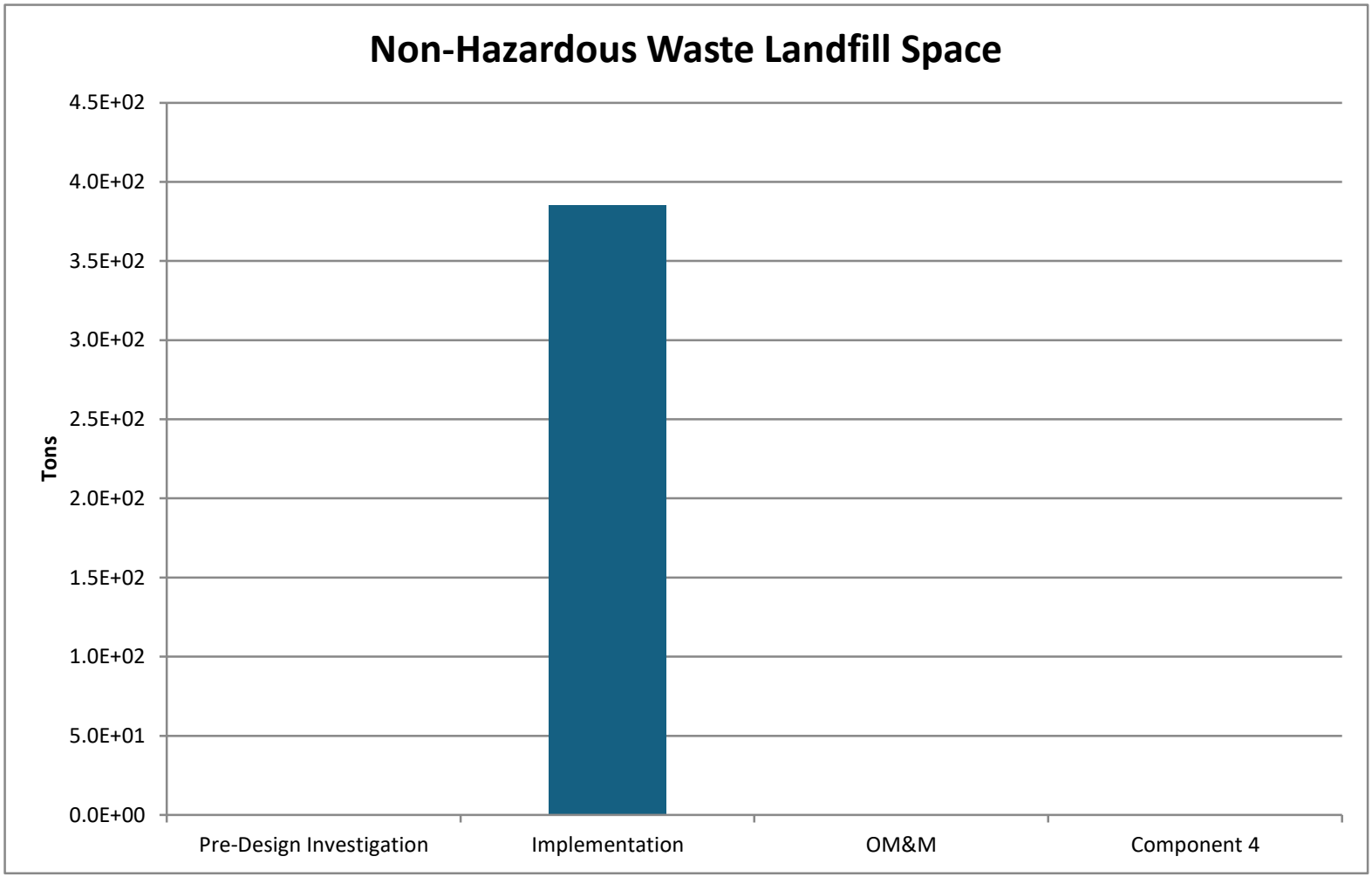

Onsite SOx Emissions
Metric Ton
3.50E-02
3.00E-02
2.50E-02
2.00E-02
1.50E-02
1.00E-02
5.00E-03
0.00E+00
Pre-Design Investigation
Implementation
OM&M
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

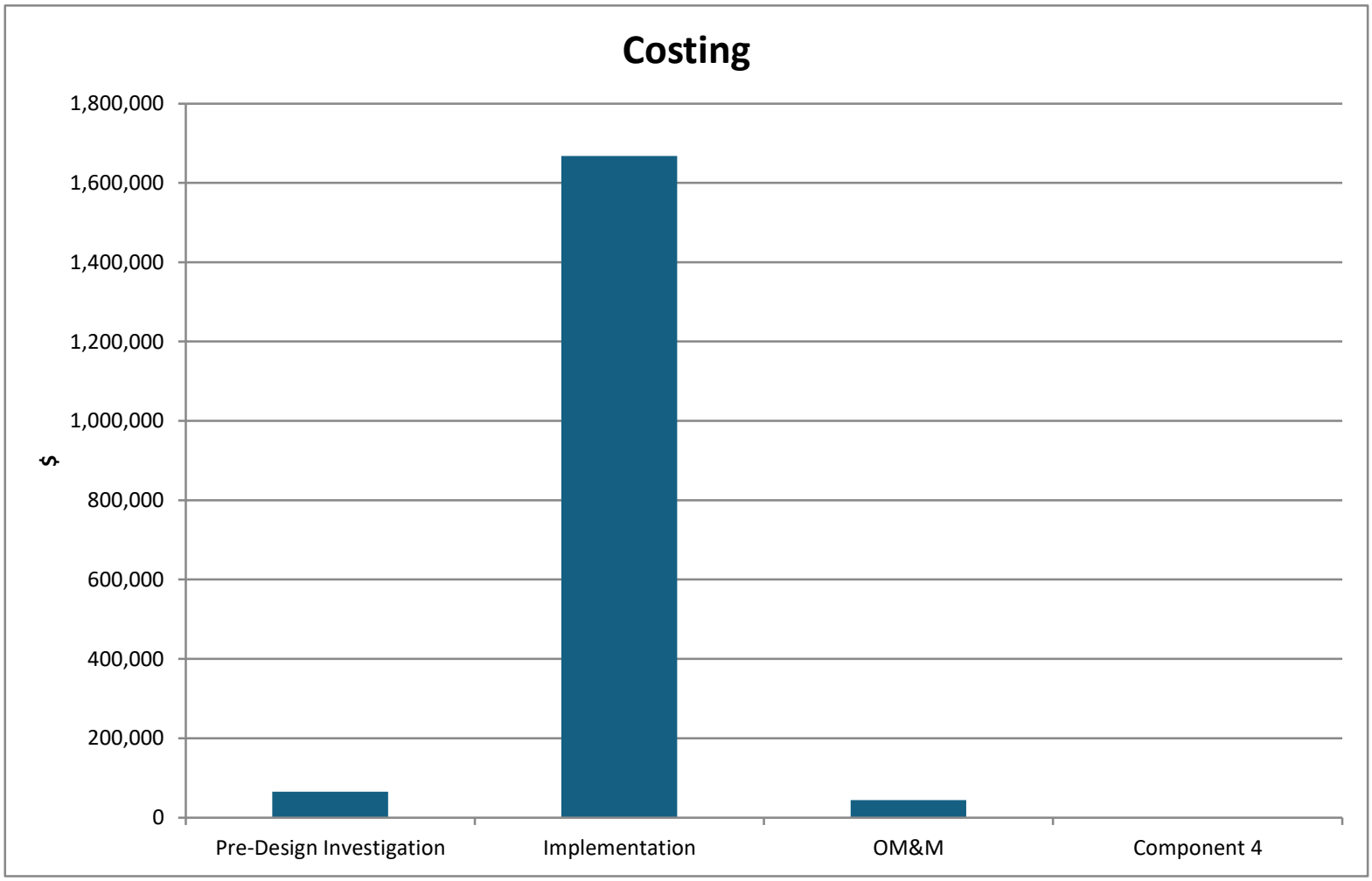

Onsite PM10 Emissions
Metric Ton
3.50E-02
3.00E-02
2.50E-02
2.00E-02
1.50E-02
1.00E-02
5.00E-03
0.00E+00
Pre-Design Investigation
Implementation
OM&M
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Total NOx Emissions
Metric Ton
5.00E-01
4.50E-01
4.00E-01
3.50E-01
3.00E-01
2.50E-01
2.00E-01
1.50E-01
1.00E-01
5.00E-02
0.00E+00
Pre-Design Investigation
Implementation
OM&M
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Total SOx Emissions
Metric Ton
1.60E-01
1.40E-01
1.20E-01
1.00E-01
8.00E-02
6.00E-02
4.00E-02
2.00E-02
0.00E+00
Pre-Design Investigation
Implementation
OM&M
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Total PM10 Emissions
Metric Ton
1.40E-01
1.20E-01
1.00E-01
8.00E-02
6.00E-02
4.00E-02
2.00E-02
0.00E+00
Pre-Design Investigation
Implementation
OM&M
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Non-Hazardous Waste Landfill Space
Tons
4.5E+02
4.0E+02
3.5E+02
3.0E+02
2.5E+02
2.0E+02
1.5E+02
1.0E+02
5.0E+01
0.0E+00
Pre-Design Investigation
Implementation
OM&M
Component 4


Costing
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
$
800,000
600,000
400,000
200,000
0
Pre-Design Investigation
Implementation
OM&M
Component 4

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 1 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 35682 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | 4 | | | | | |
| Input depth of wells (ft) | 20 | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 80 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1 1/2 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | 1,000 | | | | | |
| Input total quantity of Gravel (kg) | 0 | | | | | |
| Input total quantity of Bentonite (kg) | 200 | | | | | |
| Input total quantity of Typical Cement (kg) | 1,900 | | | | | |
| Input total quantity of General Concrete (kg) | 0 | | | | | |
| Input total quantity of Steel (kg) | 360 | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Property Survey | Utility Survey | Surveyor Oversight | GW Sampling | Drilling Subcontractor | Drilling Oversight |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | Light truck | Light truck | SUVs | SUVs | Light truck | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 270 | 270 | 270 | 270 | 270 | 600 |
| Input number of trips taken | 1 | 1 | 3 | 2 | 1 | 1 |
| Input number of travelers | 1 | 1 | 1 | 1 | 1 | 1 |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Storage Trailer | Construction Equipmer | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Diesel | Diesel | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | Yes | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | 270 | 135 | | | | |
| Input weight of equipment transported per truck load (tons) | 2.50 | 3.50 | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Well Construction | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | 4 | | | | | |
| Choose drilling method from drop down menu | Hollow Stem Auger | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | 4.00 | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (hr) (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | Soil Samples | VOC GW | PFAS GW | MNA GW | Analysis 5 | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 4,350.00 | 595.00 | 3,150.00 | 2,100.00 | | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 2 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 443870 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | | | | | | |
| Input total quantity of Gravel (kg) | | | | | | |
| Input total quantity of Bentonite (kg) | | | | | | |
| Input total quantity of Typical Cement (kg) | | | | | | |
| Input total quantity of General Concrete (kg) | | | | | | |
| Input total quantity of Steel (kg) | | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Clean Fill | Gravel | Asphalt | Topsoil | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Soil | Gravel | Asphalt | Soil | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | cubic feet | cubic feet | cubic feet | cubic feet | pounds | pounds |
| Input material quantity | 2,592 | 324 | 317 | 243 | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Subcontractor | Oversight | njection Subcontracto | Injection Oversight | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | Light truck | SUVs | Light truck | SUVs | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 300 | 600 | 160 | 600 | | |
| Input number of trips taken | 4 | 2 | 4 | 2 | | |
| Input number of travelers | 1 | 1 | 1 | 1 | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Storage Trailer | Excavator and Drill Ri | Clean Fill and Top Soi | Gravel Transport | Asphalt | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Gasoline |
| Account for an empty return trip? | No | No | Yes | Yes | Yes | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | 270 | 270 | 263 | 50 | 50 | |
| Input weight of equipment transported per truck load (tons) | 2.00 | 2.50 | 15.00 | 15.00 | 15.00 | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Excavator | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | 128 | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Injection Points | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | 12 | | | | | |
| Choose drilling method from drop down menu | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | 8.00 | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Paver | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | 1,266 | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | Documentation Sampling | Round 1: Soil | Round 1: GW | Round 2: Soil | Round 2: GW | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 3,060.00 | 1,200.00 | 425.00 | 1,200.00 | 425.00 | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | 15.0 | | | | | |
| Choose fuel used from drop down menu | Diesel | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | 13.0 | | | | | |
| Input number of miles per trip | 650.0 | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | 192.0 | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

| WATER CONSUMPTION | Injection | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | 12000 | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 3 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 68735 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | | | | | | |
| Input total quantity of Gravel (kg) | | | | | | |
| Input total quantity of Bentonite (kg) | | | | | | |
| Input total quantity of Typical Cement (kg) | | | | | | |
| Input total quantity of General Concrete (kg) | | | | | | |
| Input total quantity of Steel (kg) | | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Years 1-5 | Years 6-30 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | SUVs | SUVs | Cars | Cars | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 300 | 300 | | | | |
| Input number of trips taken | 20 | 50 | | | | |
| Input number of travelers | 1 | 1 | | | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | | | | | | |
| Input weight of equipment transported per truck load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | | | | | | |
| Choose drilling method from drop down menu | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | PFAS: Years 1-5 | VOCs: Years 6-30 | PFAS: Yeas 6-30 | VOCs: Years 6-30 | Analysis 5 | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 31,500.00 | 5,950.00 | 78,750.00 | 14,875.00 | | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

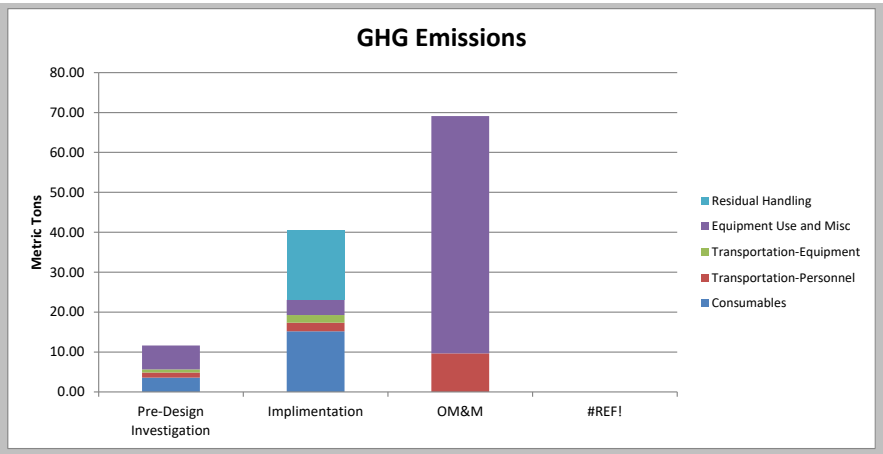
| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

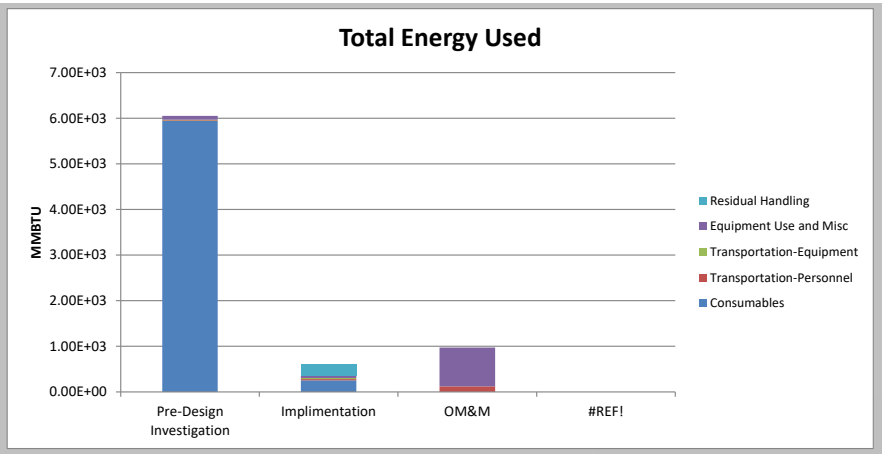
| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

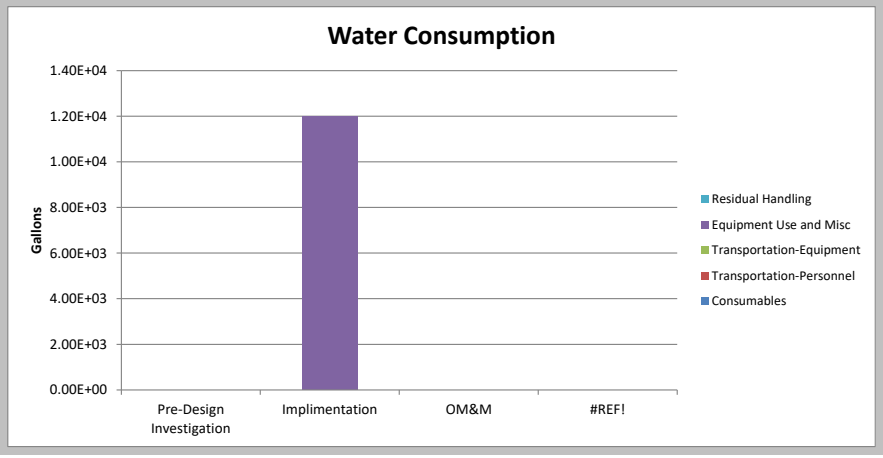
## Sustainable Remediation - Environmental Footprint Summary
## 3a

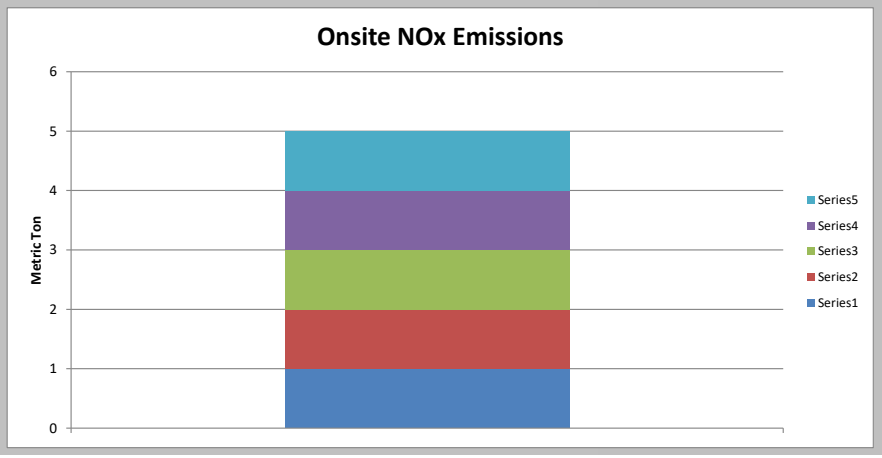
| Phase | Activities | GHG Emissions | Total Energy Used | Water Consumption | Electricity Usage | Onsite NOx Emissions | Onsite SOx Emissions | Onsite PM10 Emissions | Total NOx Emissions | Total SOx Emissions | Total PM10 Emissions | Accident Risk Fatality | Accident Risk Injury |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | metric ton | MMBTU | gallons | MWH | metric ton | metric ton | metric ton | metric ton | metric ton | metric ton | | |
| Pre-Design Investigation | Consumables | 3.58 | 5.9E+03 | NA | NA | NA | NA | NA | 7.2E-03 | 1.0E-02 | 1.3E-03 | NA | NA |
| | Transportation-Personnel | 1.30 | 1.6E+01 | NA | NA | NA | NA | NA | 4.6E-04 | 1.7E-05 | 8.2E-05 | 2.2E-05 | 1.7E-03 |
| | Transportation-Equipment | 0.78 | 1.0E+01 | NA | NA | NA | NA | NA | 2.5E-04 | 4.4E-06 | 2.2E-05 | 3.2E-06 | 2.5E-04 |
| | Equipment Use and Misc | 5.98 | 8.3E+01 | 0.0E+00 | 0.0E+00 | 1.3E-02 | 1.3E-03 | 1.2E-03 | 3.6E-02 | 1.8E-02 | 3.1E-03 | 1.5E-06 | 3.7E-04 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 11.65 | 6.05E+03 | 0.00E+00 | 0.00E+00 | 1.30E-02 | 1.33E-03 | 1.17E-03 | 4.38E-02 | 2.84E-02 | 4.58E-03 | 2.62E-05 | 2.35E-03 |
| Implimentation | Consumables | 15.21 | 2.5E+02 | NA | NA | NA | NA | NA | 7.8E-02 | 7.3E-02 | 2.6E-02 | NA | NA |
| | Transportation-Personnel | 2.12 | 2.7E+01 | NA | NA | NA | NA | NA | 7.6E-04 | 2.8E-05 | 1.3E-04 | 3.3E-05 | 2.7E-03 |
| | Transportation-Equipment | 1.94 | 2.5E+01 | NA | NA | NA | NA | NA | 6.1E-04 | 1.1E-05 | 5.4E-05 | 7.0E-06 | 5.7E-04 |
| | Equipment Use and Misc | 3.80 | 5.2E+01 | 1.2E+04 | 0.0E+00 | 8.5E-03 | 9.1E-04 | 7.7E-04 | 2.3E-02 | 1.2E-02 | 2.1E-03 | 8.9E-06 | 2.2E-03 |
| | Residual Handling | 17.39 | 2.4E+02 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 1.8E-02 | 7.3E-03 | 3.9E-02 | 6.6E-05 | 5.3E-03 |
| | Sub-Total | 40.45 | 6.01E+02 | 1.20E+04 | 0.00E+00 | 8.51E-03 | 9.10E-04 | 7.67E-04 | 1.20E-01 | 9.15E-02 | 6.71E-02 | 1.15E-04 | 1.08E-02 |
| OM&M | Consumables | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | NA | NA |
| | Transportation-Personnel | 9.65 | 1.2E+02 | NA | NA | NA | NA | NA | 3.0E-03 | 1.3E-04 | 6.0E-04 | 1.6E-04 | 1.3E-02 |
| | Transportation-Equipment | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Equipment Use and Misc | 59.45 | 8.5E+02 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 2.9E-01 | 2.1E-01 | 2.4E-02 | 0.0E+00 | 0.0E+00 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 69.11 | 9.72E+02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.88E-01 | 2.14E-01 | 2.44E-02 | 1.64E-04 | 1.32E-02 |
| **Total** | | **1.2E+02** | **7.6E+03** | **1.2E+04** | **0.0E+00** | **2.2E-02** | **2.2E-03** | **1.9E-03** | **4.5E-01** | **3.3E-01** | **9.6E-02** | **3.0E-04** | **2.6E-02** |

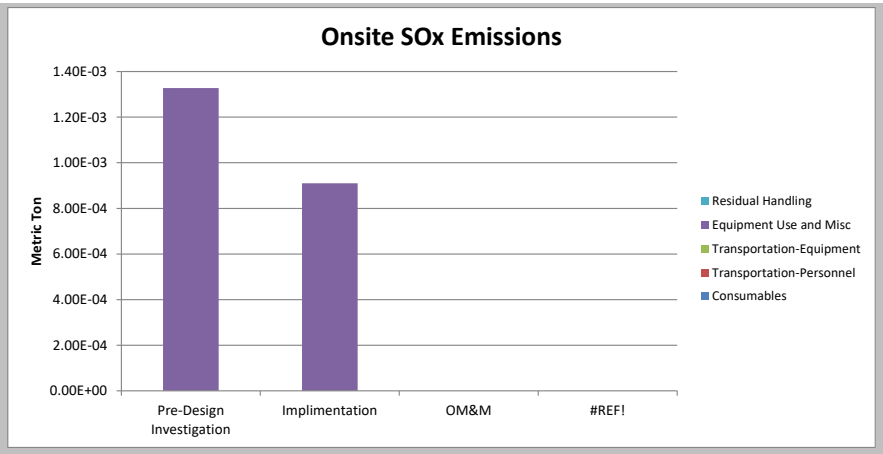
| Remedial Alternative Phase | Non-Hazardous Waste Landfill Space | Hazardous Waste Landfill Space | Topsoil Consumption | Costing | Lost Hours - Injury | Percent electricity from renewable sources | Total Cost with Footprint Reduction |
|---|---|---|---|---|---|---|---|
| | tons | tons | cubic yards | $ | | % | |
| Pre-Design Investigation | 0.0E+00 | 0.0E+00 | 0.0E+00 | 35,682 | 1.9E-02 | 0.0% | $548,287 |
| Implimentation | 0.0E+00 | 1.9E+02 | 0.0E+00 | 443,870 | 8.6E-02 | 0.0% | |
| OM&M | 0.0E+00 | 0.0E+00 | 0.0E+00 | 68,735 | 1.1E-01 | 0.0% | |
| Total | 0.0E+00 | 1.9E+02 | 0.0E+00 | $548,287 | 2.1E-01 | 0.0% | |

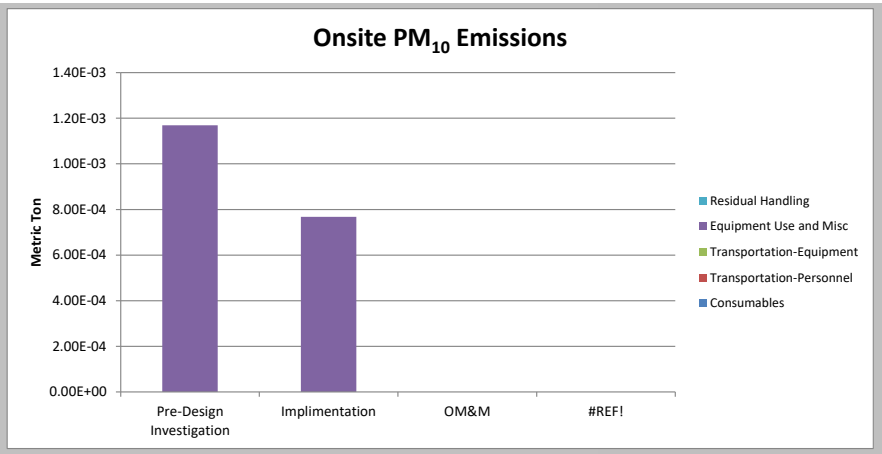

GHG Emissions
Metric Tons
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Pre-Design Investigation
Implimentation
OM&M
#REF!
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

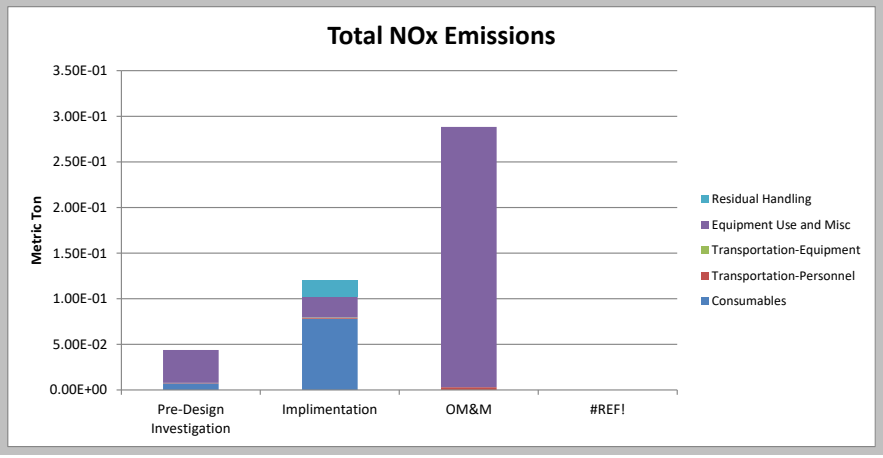

Total Energy Used
MMBTU
7.00E+03
6.00E+03
5.00E+03
4.00E+03
3.00E+03
2.00E+03
1.00E+03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
#REF!
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

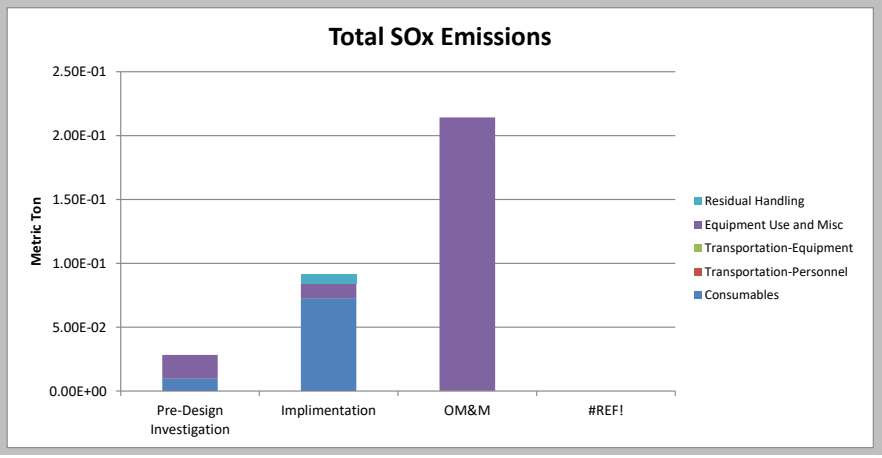

Water Consumption
Gallons
1.40E+04
1.20E+04
1.00E+04
8.00E+03
6.00E+03
4.00E+03
2.00E+03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
#REF!
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

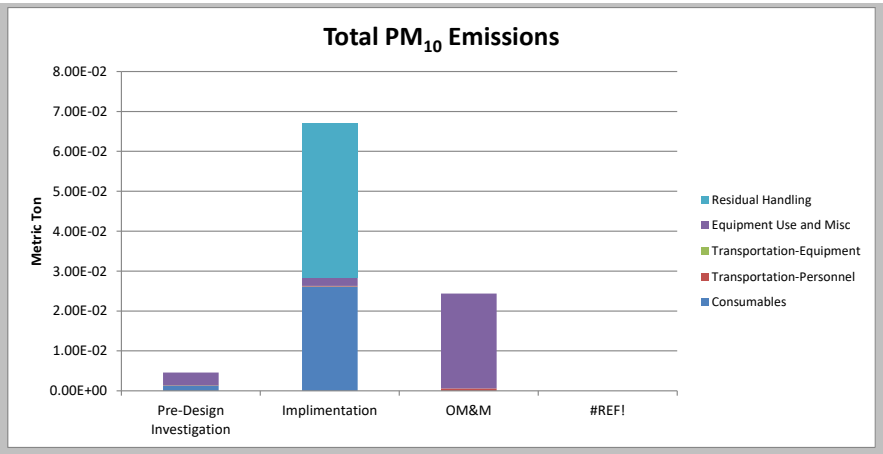

Onsite NOx Emissions
Metric Ton
6
5
4
3
2
1
0
Series5
Series4
Series3
Series2
Series1

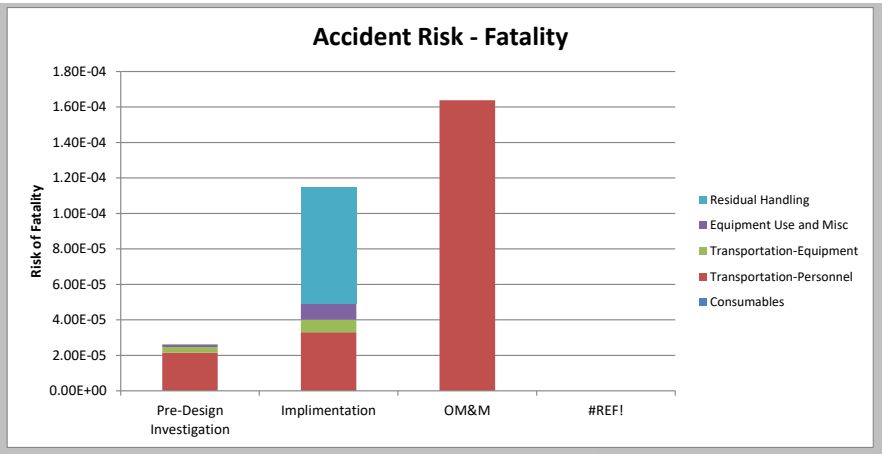

Onsite SOx Emissions
Metric Ton
1.40E-03
1.20E-03
1.00E-03
8.00E-04
6.00E-04
4.00E-04
2.00E-04
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
#REF!
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

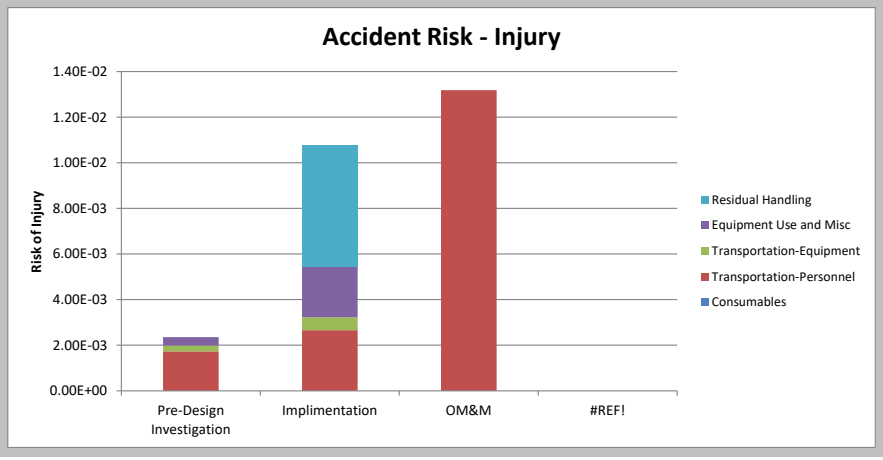

Onsite PM10 Emissions
Metric Ton
1.40E-03
1.20E-03
1.00E-03
8.00E-04
6.00E-04
4.00E-04
2.00E-04
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
#REF!
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

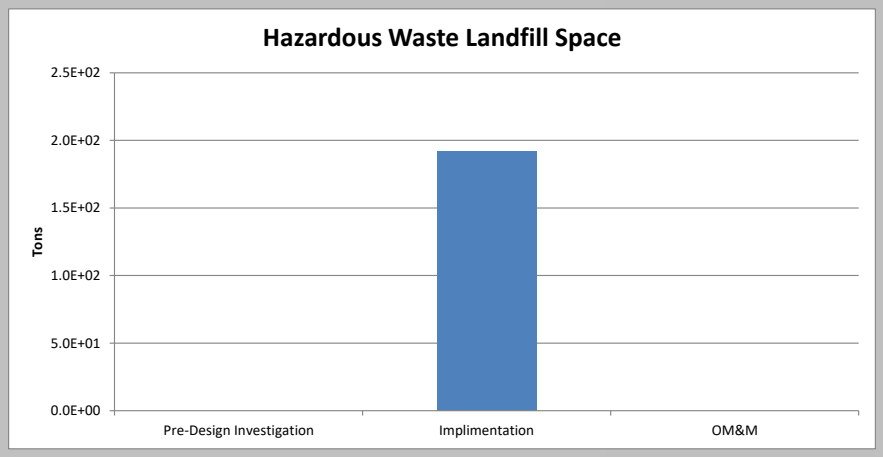

Total NOx Emissions
Metric Ton
3.50E-01
3.00E-01
2.50E-01
2.00E-01
1.50E-01
1.00E-01
5.00E-02
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
#REF!
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

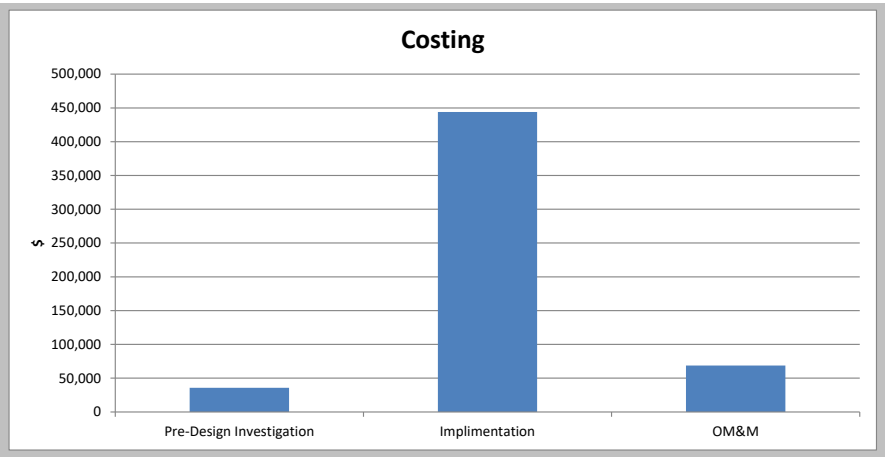

Total SOx Emissions
Metric Ton
2.50E-01
2.00E-01
1.50E-01
1.00E-01
5.00E-02
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
#REF!
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

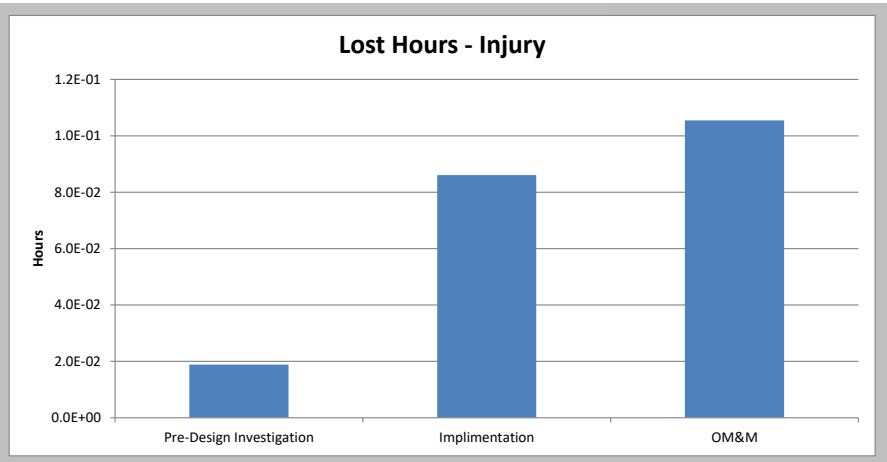

Total PM10 Emissions
Metric Ton
8.00E-02
7.00E-02
6.00E-02
5.00E-02
4.00E-02
3.00E-02
2.00E-02
1.00E-02
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
#REF!
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Accident Risk - Fatality
Risk of Fatality
1.80E-04
1.60E-04
1.40E-04
1.20E-04
1.00E-04
8.00E-05
6.00E-05
4.00E-05
2.00E-05
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
#REF!
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Accident Risk - Injury
Risk of Injury
1.40E-02
1.20E-02
1.00E-02
8.00E-03
6.00E-03
4.00E-03
2.00E-03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
#REF!
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Hazardous Waste Landfill Space
Tons
2.5E+02
2.0E+02
1.5E+02
1.0E+02
5.0E+01
0.0E+00
Pre-Design Investigation
Implimentation
OM&M


Costing
500,000
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
$
Pre-Design Investigation
Implimentation
OM&M


Lost Hours - Injury
1.2E-01
1.0E-01
8.0E-02
6.0E-02
4.0E-02
2.0E-02
0.0E+00
Hours
Pre-Design Investigation
Implimentation
OM&M

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 1 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 35682 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | 4 | | | | | |
| Input depth of wells (ft) | 20 | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 80 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1 1/2 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | 1,000 | | | | | |
| Input total quantity of Gravel (kg) | 0 | | | | | |
| Input total quantity of Bentonite (kg) | 200 | | | | | |
| Input total quantity of Typical Cement (kg) | 1,900 | | | | | |
| Input total quantity of General Concrete (kg) | 0 | | | | | |
| Input total quantity of Steel (kg) | 360 | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Property Survey | Utility Survey | Surveyor Oversight | GW Sampling | Drilling Subcontractor | Drilling Oversight |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | Light truck | Light truck | SUVs | SUVs | Light truck | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 270 | 270 | 270 | 270 | 270 | 600 |
| Input number of trips taken | 1 | 1 | 3 | 2 | 1 | 1 |
| Input number of travelers | 1 | 1 | 1 | 1 | 1 | 1 |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Storage Trailer | onstruction Equipme | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Diesel | Diesel | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | 270 | 135 | | | | |
| Input weight of equipment transported per truck load (tons) | 2.50 | 3.50 | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Well Construction | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | 4 | | | | | |
| Choose drilling method from drop down menu | Hollow Stem Auger | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | 4.00 | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (hr) (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | Soil Samples | VOC GW | PFAS GW | MNA GW | Analysis 5 | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 4,350.00 | 595.00 | 3,150.00 | 2,100.00 | | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 2 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 323230 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | | | | | | |
| Input total quantity of Gravel (kg) | | | | | | |
| Input total quantity of Bentonite (kg) | | | | | | |
| Input total quantity of Typical Cement (kg) | | | | | | |
| Input total quantity of General Concrete (kg) | | | | | | |
| Input total quantity of Steel (kg) | | | | | | |

| TREATMENT CHEMICALS & MATERIALS | ELS | pH Buffer | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | 1 | 1 | | | | |
| Choose material type from drop down menu | Vegetable Oil | Medium Impact Materia | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | 420 | 50 | | | | |
| Input number of injections per injection point | 1 | 1 | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Clean Fill | Gravel | Asphalt | Topsoil | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Soil | Gravel | Asphalt | Soil | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | cubic feet | cubic feet | cubic feet | cubic feet | pounds | pounds |
| Input material quantity | 2,592 | 324 | 317 | 243 | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Excavation Subcontract | Excavation Oversight | Injection Subcontracto | Injection Oversight | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | Light truck | SUVs | Light truck | Heavy Duty | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Diesel | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 300 | 600 | 270 | 600 | | |
| Input number of trips taken | 4 | 2 | 2 | 1 | | |
| Input number of travelers | 1 | 1 | 1 | 1 | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Storage Trailer | Excavator and Drill Ri | Clean Fill | Gravel Transport | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Diesel | Diesel | Diesel | Diesel | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | Yes | Yes | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | 270 | 270 | 1,500 | 375 | | |
| Input weight of equipment transported per truck load (tons) | 2.00 | 2.50 | 1.50 | 15.00 | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Excavator | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | 128 | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Injection Points | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | 12 | | | | | |
| Choose drilling method from drop down menu | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | 4.00 | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | Documentation Sampling | Round 1: Soil | Round 1: GW | Round 2: Soil | Round 2: GW | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 3,060.00 | 1,200.00 | 425.00 | 1,200.00 | 425.00 | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | 15.0 | | | | | |
| Choose fuel used from drop down menu | Diesel | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | 13.0 | | | | | |
| Input number of miles per trip | 650.0 | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | 192.0 | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

| WATER CONSUMPTION | Injection | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | 3824 | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 3 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 71535 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | | | | | | |
| Input total quantity of Gravel (kg) | | | | | | |
| Input total quantity of Bentonite (kg) | | | | | | |
| Input total quantity of Typical Cement (kg) | | | | | | |
| Input total quantity of General Concrete (kg) | | | | | | |
| Input total quantity of Steel (kg) | | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Years 1-5 | Years 6-30 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | SUVs | SUVs | Cars | Cars | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 300 | 300 | | | | |
| Input number of trips taken | 20 | 50 | | | | |
| Input number of travelers | 1 | 1 | | | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | | | | | | |
| Input weight of equipment transported per truck load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | | | | | | |
| Choose drilling method from drop down menu | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possible | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possible | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | PFAS: Years 1-5 | VOCs: Years 6-30 | PFAS: Yeas 6-30 | VOCs: Years 6-30 | MNA: Years 1-5 | MNA: Years 6-30 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 31,500.00 | 5,950.00 | 78,750.00 | 14,875.00 | 7,000.00 | 35,000.00 |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

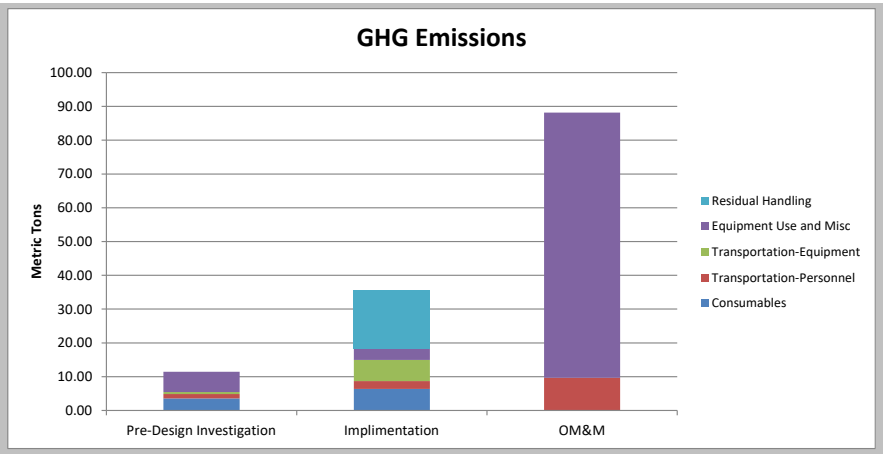
| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

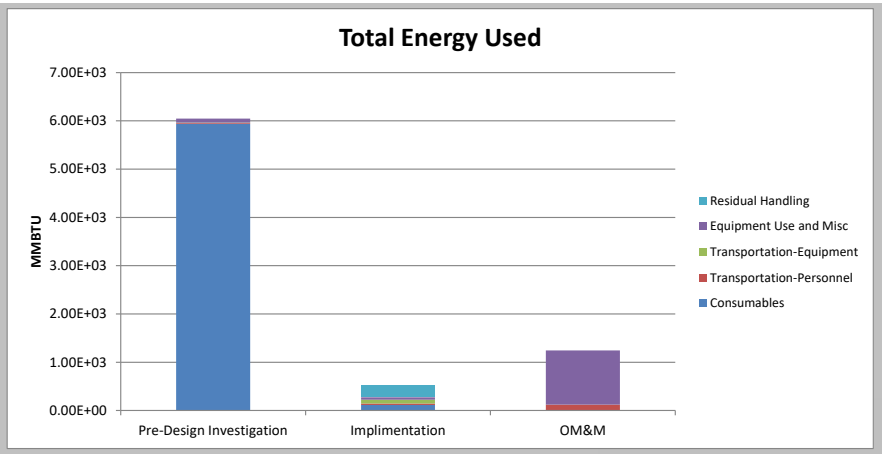
| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

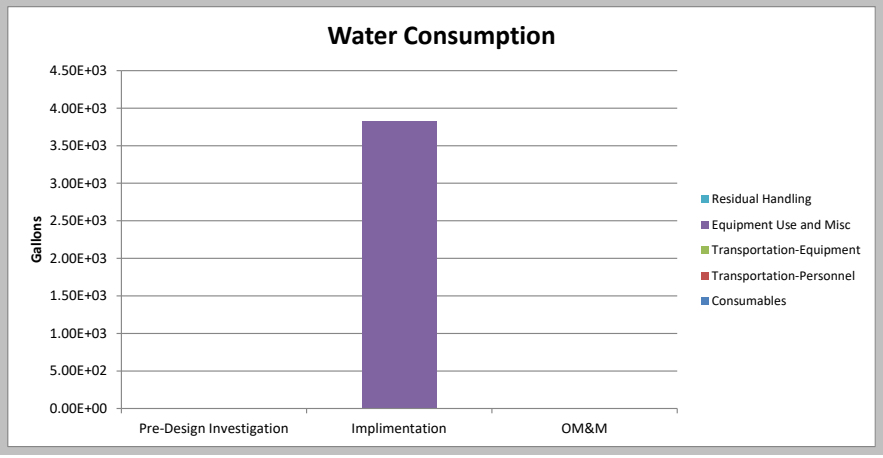
## Sustainable Remediation - Environmental Footprint Summary
## 3b

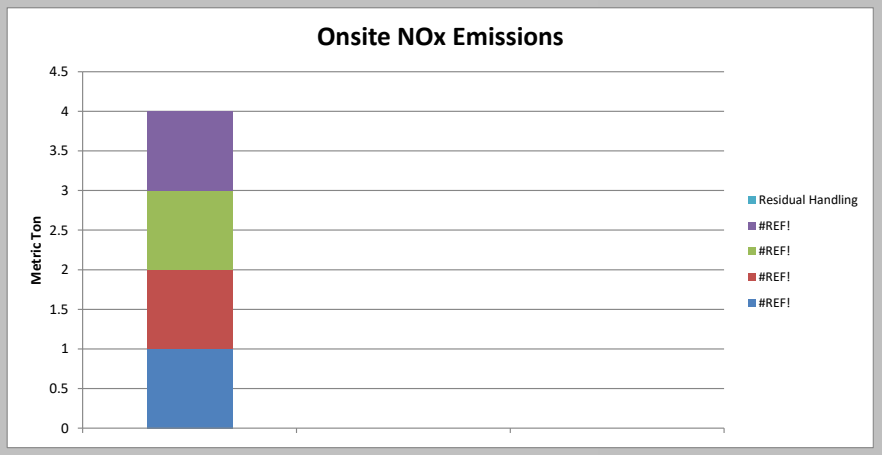
| Phase | Activities | GHG Emissions | Total Energy Used | Water Consumption | Electricity Usage | Onsite NOx Emissions | Onsite SOx Emissions | Onsite PM10 Emissions | Total NOx Emissions | Total SOx Emissions | Total PM10 Emissions | Accident Risk Fatality | Accident Risk Injury |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | metric ton | MMBTU | gallons | MWH | metric ton | metric ton | metric ton | metric ton | metric ton | metric ton | | |
| Pre-Design Investigation | Consumables | 3.58 | 5.9E+03 | NA | NA | NA | NA | NA | 7.2E-03 | 1.0E-02 | 1.3E-03 | NA | NA |
| | Transportation-Personnel | 1.30 | 1.6E+01 | NA | NA | NA | NA | NA | 4.6E-04 | 1.7E-05 | 8.2E-05 | 2.2E-05 | 1.7E-03 |
| | Transportation-Equipment | 0.59 | 7.7E+00 | NA | NA | NA | NA | NA | 1.9E-04 | 3.3E-06 | 1.7E-05 | 3.2E-06 | 2.5E-04 |
| | Equipment Use and Misc | 5.98 | 8.3E+01 | 0.0E+00 | 0.0E+00 | 1.3E-02 | 1.3E-03 | 1.2E-03 | 3.6E-02 | 1.8E-02 | 3.1E-03 | 1.5E-06 | 3.7E-04 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 11.46 | 6.05E+03 | 0.00E+00 | 0.00E+00 | 1.30E-02 | 1.33E-03 | 1.17E-03 | 4.38E-02 | 2.84E-02 | 4.57E-03 | 2.62E-05 | 2.35E-03 |
| Implimentation | Consumables | 6.38 | 1.1E+02 | NA | NA | NA | NA | NA | 2.0E-02 | 2.9E-02 | 9.5E-03 | NA | NA |
| | Transportation-Personnel | 2.34 | 3.0E+01 | NA | NA | NA | NA | NA | 8.7E-04 | 2.8E-05 | 1.1E-04 | 2.8E-05 | 2.2E-03 |
| | Transportation-Equipment | 6.24 | 8.1E+01 | NA | NA | NA | NA | NA | 2.0E-03 | 3.5E-05 | 1.7E-04 | 1.9E-05 | 1.5E-03 |
| | Equipment Use and Misc | 3.35 | 4.7E+01 | 3.8E+03 | 0.0E+00 | 4.4E-03 | 4.9E-04 | 4.0E-04 | 1.8E-02 | 1.1E-02 | 1.6E-03 | 4.5E-06 | 1.1E-03 |
| | Residual Handling | 17.39 | 2.4E+02 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 1.8E-02 | 7.3E-03 | 3.9E-02 | 6.6E-05 | 5.3E-03 |
| | Sub-Total | 35.70 | 5.13E+02 | 3.82E+03 | 0.00E+00 | 4.39E-03 | 4.88E-04 | 3.96E-04 | 5.95E-02 | 4.75E-02 | 5.02E-02 | 1.17E-04 | 1.02E-02 |
| OM&M | Consumables | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | NA | NA |
| | Transportation-Personnel | 9.65 | 1.2E+02 | NA | NA | NA | NA | NA | 3.0E-03 | 1.3E-04 | 6.0E-04 | 1.6E-04 | 1.3E-02 |
| | Transportation-Equipment | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Equipment Use and Misc | 78.51 | 1.1E+03 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 3.8E-01 | 2.8E-01 | 3.1E-02 | 0.0E+00 | 0.0E+00 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 88.16 | 1.24E+03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.80E-01 | 2.83E-01 | 3.20E-02 | 1.64E-04 | 1.32E-02 |
| **Total** | | **1.4E+02** | **7.8E+03** | **3.8E+03** | **0.0E+00** | **1.7E-02** | **1.8E-03** | **1.6E-03** | **4.8E-01** | **3.6E-01** | **8.7E-02** | **3.1E-04** | **2.6E-02** |

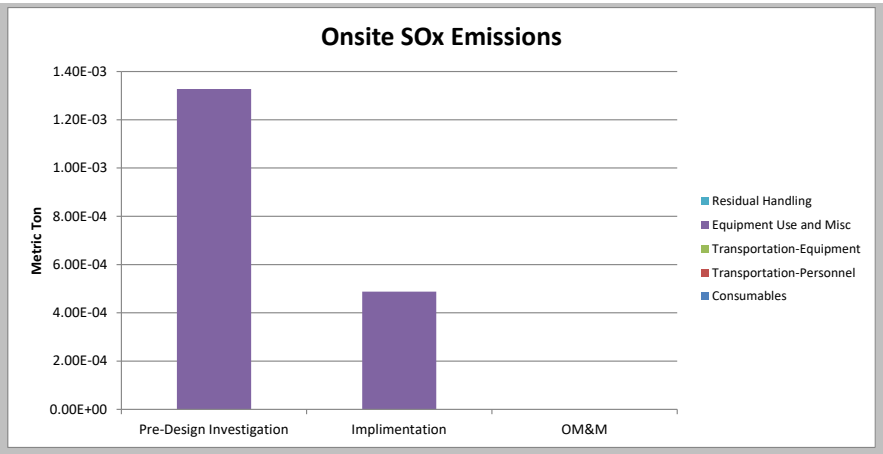
| Remedial Alternative Phase | Non-Hazardous Waste Landfill Space | Hazardous Waste Landfill Space | Topsoil Consumption | Costing | Lost Hours - Injury | Percent electricity from renewable sources | Total Cost with Footprint Reduction |
|---|---|---|---|---|---|---|---|
| | tons | tons | cubic yards | $ | | % | |
| Pre-Design Investigation | 0.0E+00 | 0.0E+00 | 0.0E+00 | 35,682 | 1.9E-02 | 0.0% | $430,447 |
| Implimentation | 0.0E+00 | 1.9E+02 | 0.0E+00 | 323,230 | 8.1E-02 | 0.0% | |
| OM&M | 0.0E+00 | 0.0E+00 | 0.0E+00 | 71,535 | 1.1E-01 | 0.0% | |
| **Total** | **0.0E+00** | **1.9E+02** | **0.0E+00** | **$430,447** | **2.1E-01** | **0.0%** | |

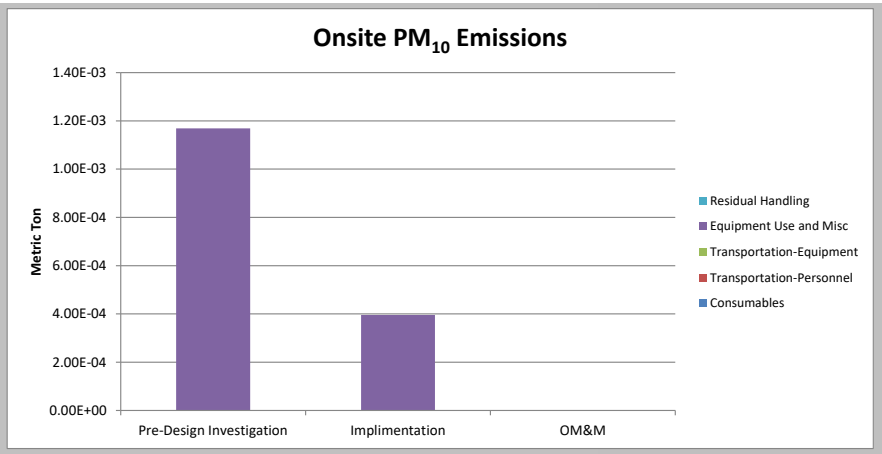

GHG Emissions
Metric Tons
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

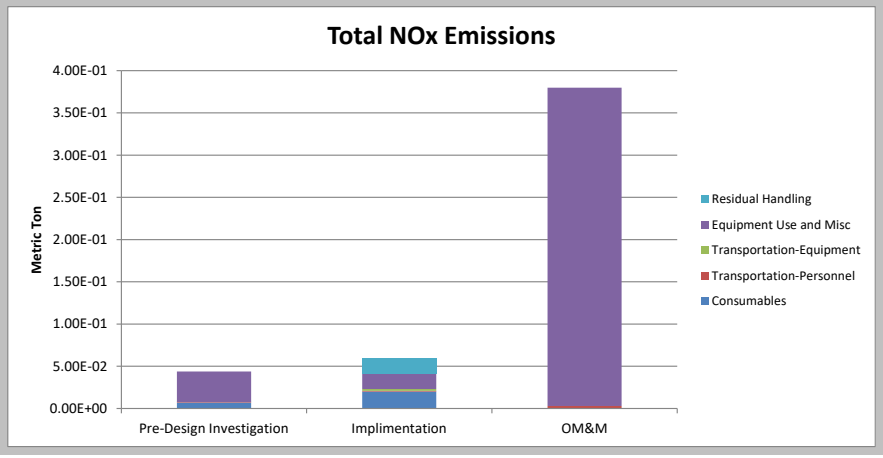

Total Energy Used
MMBTU
7.00E+03
6.00E+03
5.00E+03
4.00E+03
3.00E+03
2.00E+03
1.00E+03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

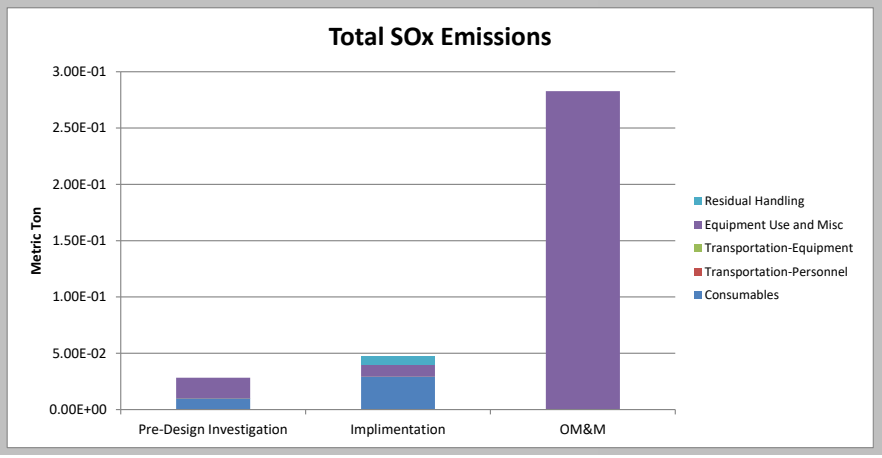

Water Consumption
Gallons
4.50E+03
4.00E+03
3.50E+03
3.00E+03
2.50E+03
2.00E+03
1.50E+03
1.00E+03
5.00E+02
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

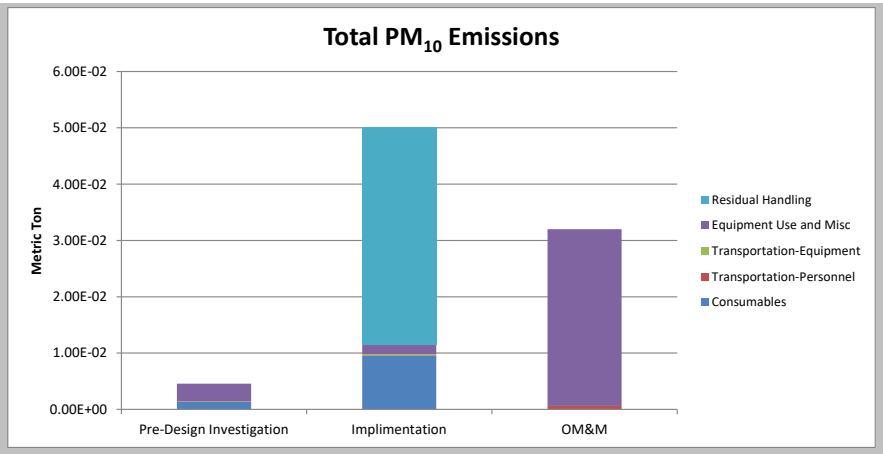

Onsite NOx Emissions
Metric Ton
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Residual Handling
#REF!
#REF!
#REF!
#REF!

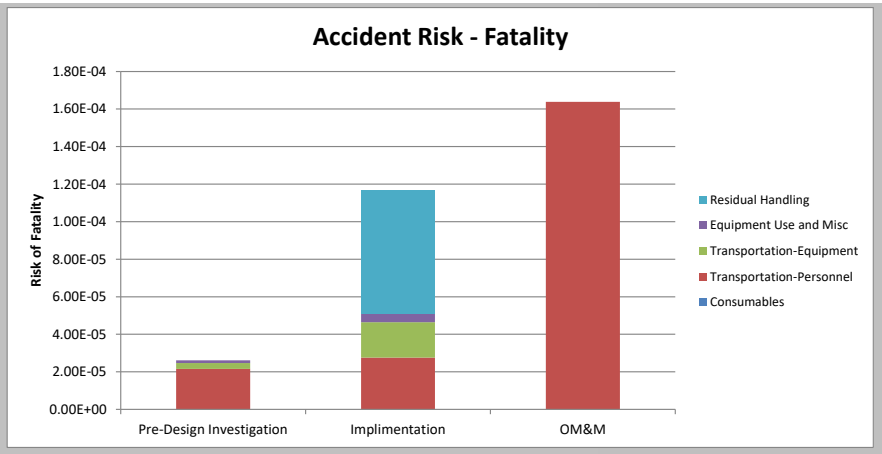

Onsite SOx Emissions
Metric Ton
1.40E-03
1.20E-03
1.00E-03
8.00E-04
6.00E-04
4.00E-04
2.00E-04
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

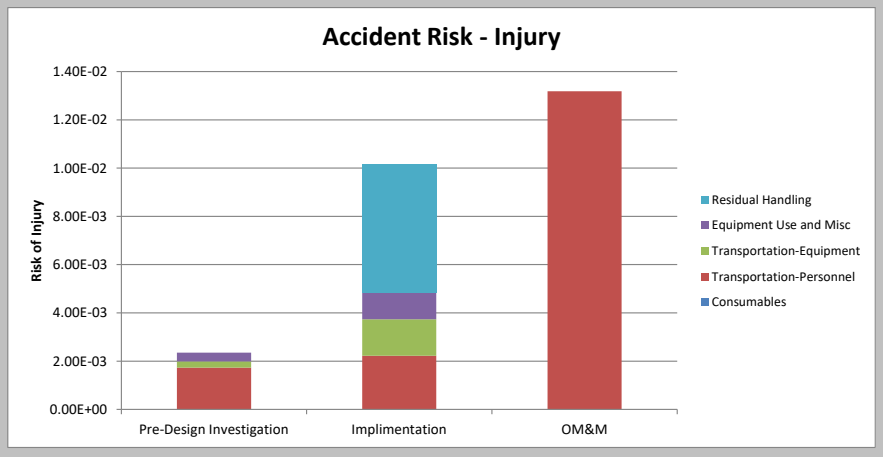

Onsite PM10 Emissions
Metric Ton
1.40E-03
1.20E-03
1.00E-03
8.00E-04
6.00E-04
4.00E-04
2.00E-04
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

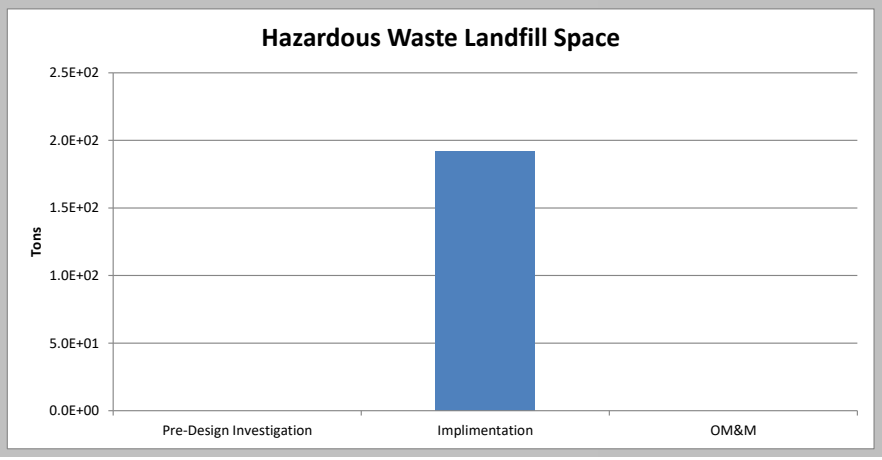

Total NOx Emissions
Metric Ton
4.00E-01
3.50E-01
3.00E-01
2.50E-01
2.00E-01
1.50E-01
1.00E-01
5.00E-02
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

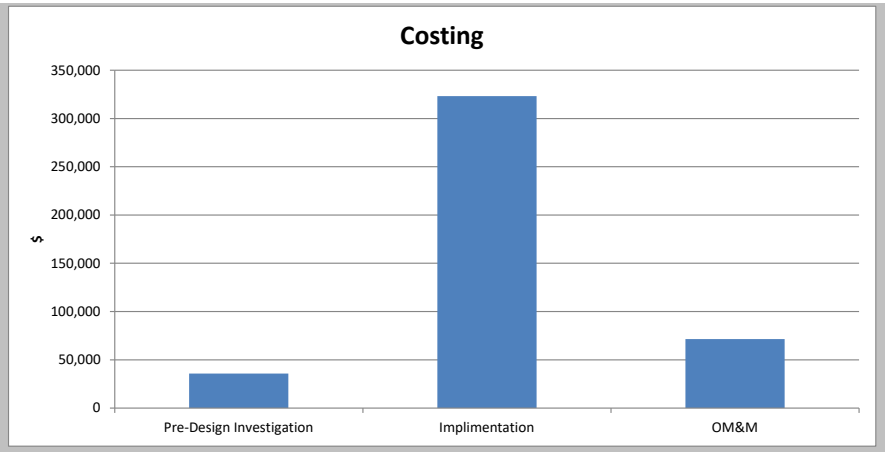

Total SOx Emissions
Metric Ton
3.00E-01
2.50E-01
2.00E-01
1.50E-01
1.00E-01
5.00E-02
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

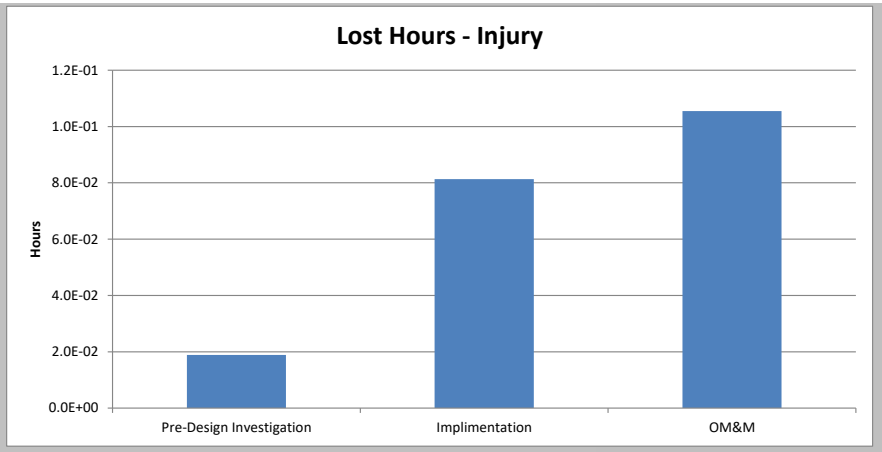

Total PM10 Emissions
Metric Ton
6.00E-02
5.00E-02
4.00E-02
3.00E-02
2.00E-02
1.00E-02
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Accident Risk - Fatality
Risk of Fatality
1.80E-04
1.60E-04
1.40E-04
1.20E-04
1.00E-04
8.00E-05
6.00E-05
4.00E-05
2.00E-05
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Accident Risk - Injury
Risk of Injury
1.40E-02
1.20E-02
1.00E-02
8.00E-03
6.00E-03
4.00E-03
2.00E-03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Hazardous Waste Landfill Space
Tons
2.5E+02
2.0E+02
1.5E+02
1.0E+02
5.0E+01
0.0E+00
Pre-Design Investigation
Implimentation
OM&M


Costing
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
$
Pre-Design Investigation
Implimentation
OM&M


Lost Hours - Injury
1.2E-01
1.0E-01
8.0E-02
6.0E-02
4.0E-02
2.0E-02
0.0E+00
Hours
Pre-Design Investigation
Implimentation
OM&M

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 1 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 32232 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | 4 | | | | | |
| Input depth of wells (ft) | 20 | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 80 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1 1/2 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | 1,000 | | | | | |
| Input total quantity of Gravel (kg) | 0 | | | | | |
| Input total quantity of Bentonite (kg) | 200 | | | | | |
| Input total quantity of Typical Cement (kg) | 1,900 | | | | | |
| Input total quantity of General Concrete (kg) | 0 | | | | | |
| Input total quantity of Steel (kg) | 360 | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Property Survey | Utility Survey | Surveyor Oversight | GW Sampling | Drilling Subcontractor | Drilling Oversight |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | Light truck | Light truck | SUVs | SUVs | Light truck | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 270 | 270 | 270 | 270 | 270 | 600 |
| Input number of trips taken | 1 | 1 | 3 | 2 | 1 | 1 |
| Input number of travelers | 1 | 1 | 1 | 1 | 1 | 1 |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Storage Trailer | onstruction Equipme | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Diesel | Diesel | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | 270 | 135 | | | | |
| Input weight of equipment transported per truck load (tons) | 2.50 | 3.50 | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Well Construction | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | 4 | | | | | |
| Choose drilling method from drop down menu | Hollow Stem Auger | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | 4.00 | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (hr) (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | Soil Samples | VOC GW | PFAS GW | MNA GW | Analysis 5 | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 900.00 | 595.00 | 3,150.00 | 2,100.00 | | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 2 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 338240 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | | | | | | |
| Input total quantity of Gravel (kg) | | | | | | |
| Input total quantity of Bentonite (kg) | | | | | | |
| Input total quantity of Typical Cement (kg) | | | | | | |
| Input total quantity of General Concrete (kg) | | | | | | |
| Input total quantity of Steel (kg) | | | | | | |

| TREATMENT CHEMICALS & MATERIALS | NaOH | Klozur | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | 1 | 1 | | | | |
| Choose material type from drop down menu | dium Hydroxide (dry, bu | Medium Impact Materia | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | 4200 | 10580 | | | | |
| Input number of injections per injection point | 1 | 1 | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Asphalt | Crushed Stone | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Asphalt | Gravel | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | cubic feet | cubic feet | pounds | pounds | pounds | pounds |
| Input material quantity | 233 | 243 | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Surveyor | Oversight | njection Subcontracto | Injection Oversight | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | Light truck | SUVs | Light truck | SUVs | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 300 | 600 | 270 | 600 | | |
| Input number of trips taken | 2 | 1 | 4 | 2 | | |
| Input number of travelers | 1 | 1 | 1 | 1 | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Storage Trailer | Excavator and Drill Rig | Clean Fill | Asphalt | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Diesel | Diesel | Diesel | Diesel | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | Yes | Yes | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | 270 | 270 | 50 | 25 | | |
| Input weight of equipment transported per truck load (tons) | 2.00 | 2.50 | 15.00 | 15.00 | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Excavator | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | 17 | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Injection Points | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | 12 | | | | | |
| Choose drilling method from drop down menu | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | 8.00 | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Roller | Paver | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Paver | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | 466 | 466 | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | Documentation Sampling | Round 1: Soil | Round 1: GW | Round 2: Soil | Round 2: GW | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 3,060.00 | 1,200.00 | 425.00 | 1,200.00 | 425.00 | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | 15.0 | | | | | |
| Choose fuel used from drop down menu | Diesel | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | 2.0 | | | | | |
| Input number of miles per trip | 650.0 | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | 26.0 | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

| WATER CONSUMPTION | Injections | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | 12000 | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 3 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 73235 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | | | | | | |
| Input total quantity of Gravel (kg) | | | | | | |
| Input total quantity of Bentonite (kg) | | | | | | |
| Input total quantity of Typical Cement (kg) | | | | | | |
| Input total quantity of General Concrete (kg) | | | | | | |
| Input total quantity of Steel (kg) | | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Years 1-5 | Years 6-30 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | SUVs | SUVs | Cars | Cars | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 300 | 300 | | | | |
| Input number of trips taken | 20 | 50 | | | | |
| Input number of travelers | 1 | 1 | | | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | | | | | | |
| Input weight of equipment transported per truck load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | | | | | | |
| Choose drilling method from drop down menu | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | PFAS: Years 1-5 | VOCs: Years 6-30 | PFAS: Yeas 6-30 | VOCs: Years 6-30 | Analysis 5 | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 31,500.00 | 5,950.00 | 78,750.00 | 14,875.00 | | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

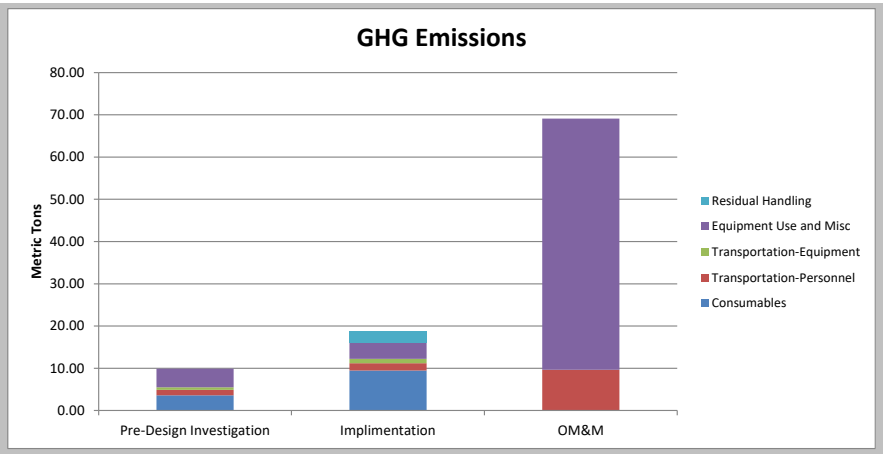
| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

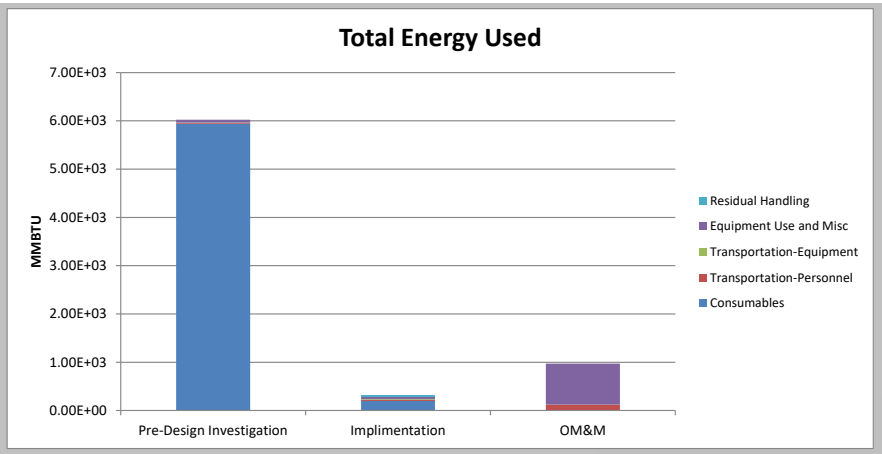
| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

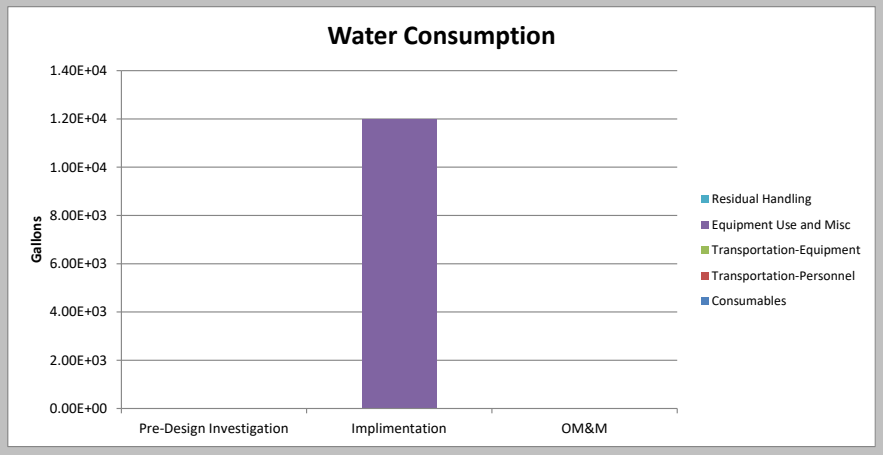
## Sustainable Remediation - Environmental Footprint Summary
## 4a

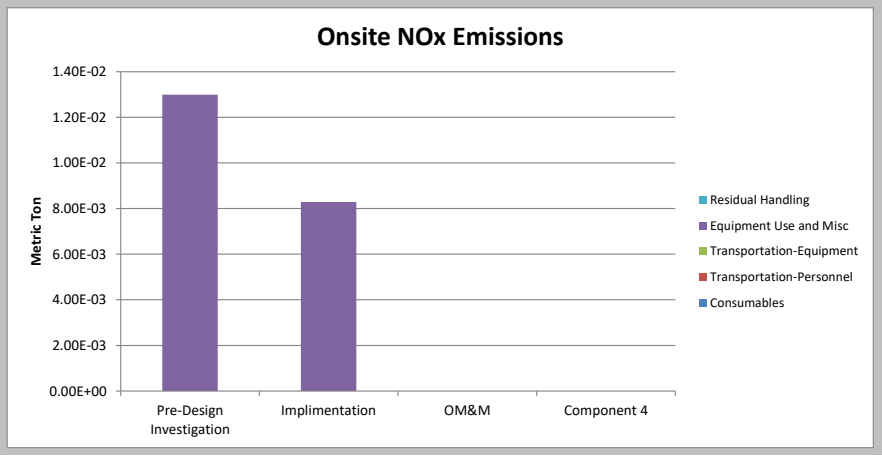
| Phase | Activities | GHG Emissions | Total Energy Used | Water Consumption | Electricity Usage | Onsite NOx Emissions | Onsite SOx Emissions | Onsite PM10 Emissions | Total NOx Emissions | Total SOx Emissions | Total PM10 Emissions | Accident Risk Fatality | Accident Risk Injury |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | metric ton | MMBTU | gallons | MWH | metric ton | metric ton | metric ton | metric ton | metric ton | metric ton | | |
| Pre-Design Investigation | Consumables | 3.58 | 5.9E+03 | NA | NA | NA | NA | NA | 7.2E-03 | 1.0E-02 | 1.3E-03 | NA | NA |
| | Transportation-Personnel | 1.30 | 1.6E+01 | NA | NA | NA | NA | NA | 4.6E-04 | 1.7E-05 | 8.2E-05 | 2.2E-05 | 1.7E-03 |
| | Transportation-Equipment | 0.59 | 7.7E+00 | NA | NA | NA | NA | NA | 1.9E-04 | 3.3E-06 | 1.7E-05 | 3.2E-06 | 2.5E-04 |
| | Equipment Use and Misc | 4.42 | 6.0E+01 | 0.0E+00 | 0.0E+00 | 1.3E-02 | 1.3E-03 | 1.2E-03 | 2.8E-02 | 1.3E-02 | 2.5E-03 | 1.5E-06 | 3.7E-04 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 9.89 | 6.03E+03 | 0.00E+00 | 0.00E+00 | 1.30E-02 | 1.33E-03 | 1.17E-03 | 3.62E-02 | 2.27E-02 | 3.95E-03 | 2.62E-05 | 2.35E-03 |
| Implimentation | Consumables | 9.45 | 2.0E+02 | NA | NA | NA | NA | NA | 2.7E-02 | 4.5E-02 | 9.3E-03 | NA | NA |
| | Transportation-Personnel | 1.75 | 2.2E+01 | NA | NA | NA | NA | NA | 6.4E-04 | 2.3E-05 | 1.1E-04 | 2.7E-05 | 2.2E-03 |
| | Transportation-Equipment | 1.02 | 1.3E+01 | NA | NA | NA | NA | NA | 3.2E-04 | 5.7E-06 | 2.9E-05 | 4.8E-06 | 3.9E-04 |
| | Equipment Use and Misc | 3.76 | 5.2E+01 | 1.2E+04 | 0.0E+00 | 8.3E-03 | 8.5E-04 | 7.5E-04 | 2.3E-02 | 1.1E-02 | 2.0E-03 | 8.8E-06 | 2.2E-03 |
| | Residual Handling | 2.63 | 3.6E+01 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 2.5E-03 | 9.9E-04 | 5.3E-03 | 1.0E-05 | 8.2E-04 |
| | Sub-Total | 18.62 | 3.21E+02 | 1.20E+04 | 0.00E+00 | 8.29E-03 | 8.53E-04 | 7.46E-04 | 5.28E-02 | 5.79E-02 | 1.67E-02 | 5.09E-05 | 5.60E-03 |
| OM&M | Consumables | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | NA | NA |
| | Transportation-Personnel | 9.65 | 1.2E+02 | NA | NA | NA | NA | NA | 3.0E-03 | 1.3E-04 | 6.0E-04 | 1.6E-04 | 1.3E-02 |
| | Transportation-Equipment | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Equipment Use and Misc | 59.45 | 8.5E+02 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 2.9E-01 | 2.1E-01 | 2.4E-02 | 0.0E+00 | 0.0E+00 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 69.11 | 9.72E+02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.88E-01 | 2.14E-01 | 2.44E-02 | 1.64E-04 | 1.32E-02 |
| **Total** | | **9.8E+01** | **7.3E+03** | **1.2E+04** | **0.0E+00** | **2.1E-02** | **2.2E-03** | **1.9E-03** | **3.8E-01** | **2.9E-01** | **4.5E-02** | **2.4E-04** | **2.1E-02** |

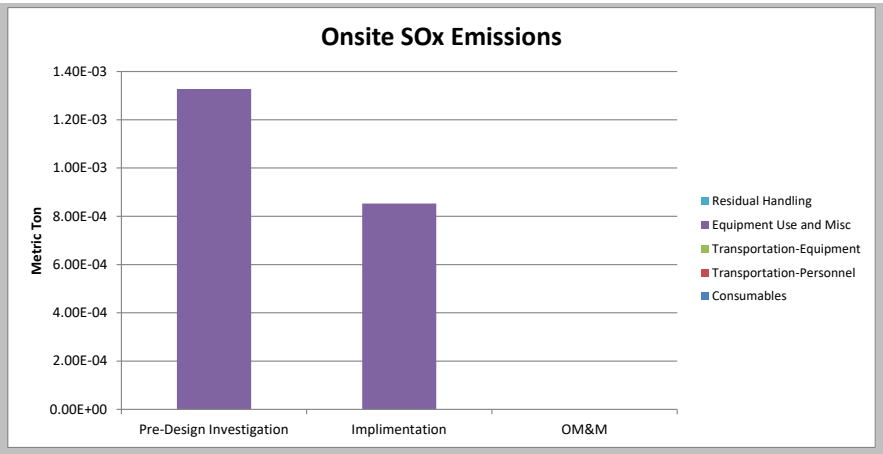
| Remedial Alternative Phase | Non-Hazardous Waste Landfill Space | Hazardous Waste Landfill Space | Topsoil Consumption | Costing | Lost Hours - Injury | Percent electricity from renewable sources | Total Cost with Footprint Reduction |
|---|---|---|---|---|---|---|---|
| | tons | tons | cubic yards | $ | | % | |
| Pre-Design Investigation | 0.0E+00 | 0.0E+00 | 0.0E+00 | 32,232 | 1.9E-02 | 0.0% | $443,707 |
| Implimentation | 0.0E+00 | 2.6E+01 | 0.0E+00 | 338,240 | 4.5E-02 | 0.0% | |
| OM&M | 0.0E+00 | 0.0E+00 | 0.0E+00 | 73,235 | 1.1E-01 | 0.0% | |
| **Total** | **0.0E+00** | **2.6E+01** | **0.0E+00** | **$443,707** | **1.7E-01** | **0.0%** | |

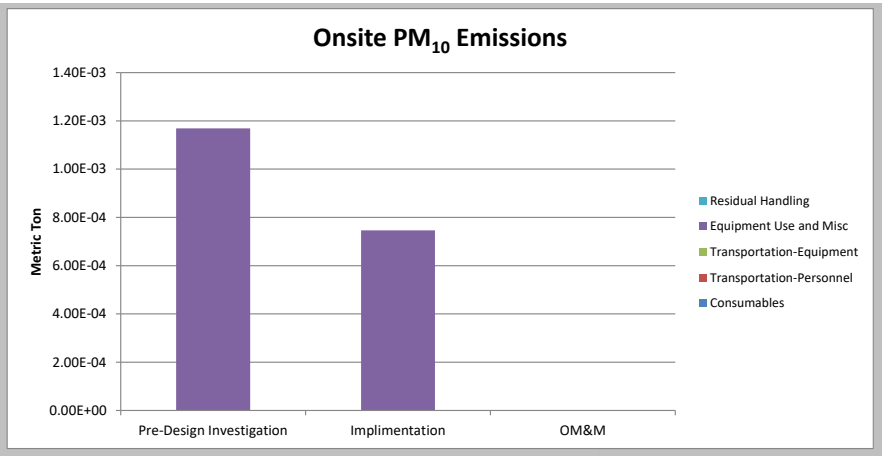

GHG Emissions
Metric Tons
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

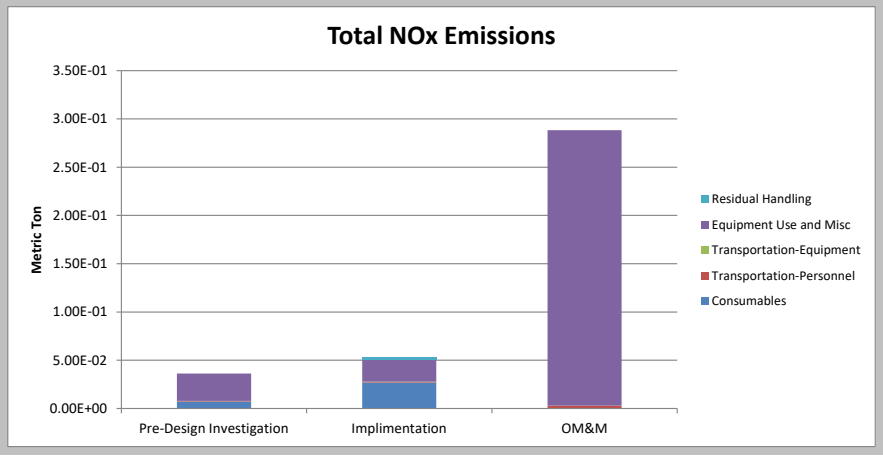

Total Energy Used
MMBTU
7.00E+03
6.00E+03
5.00E+03
4.00E+03
3.00E+03
2.00E+03
1.00E+03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

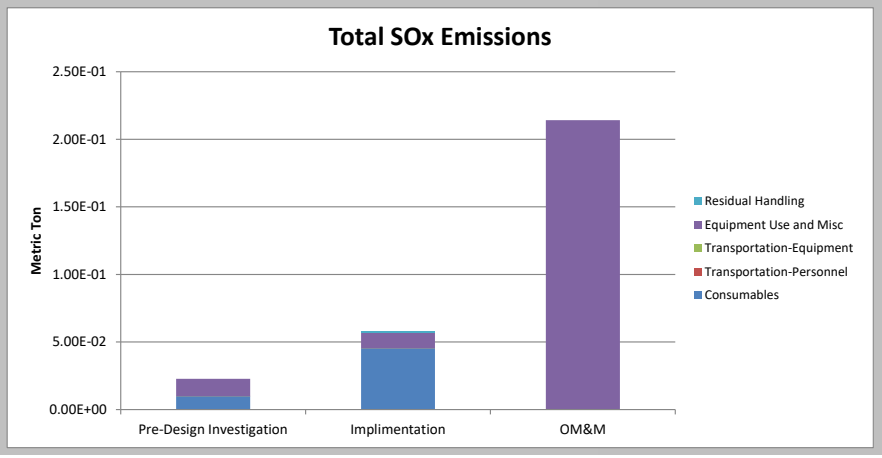

Water Consumption
Gallons
1.40E+04
1.20E+04
1.00E+04
8.00E+03
6.00E+03
4.00E+03
2.00E+03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

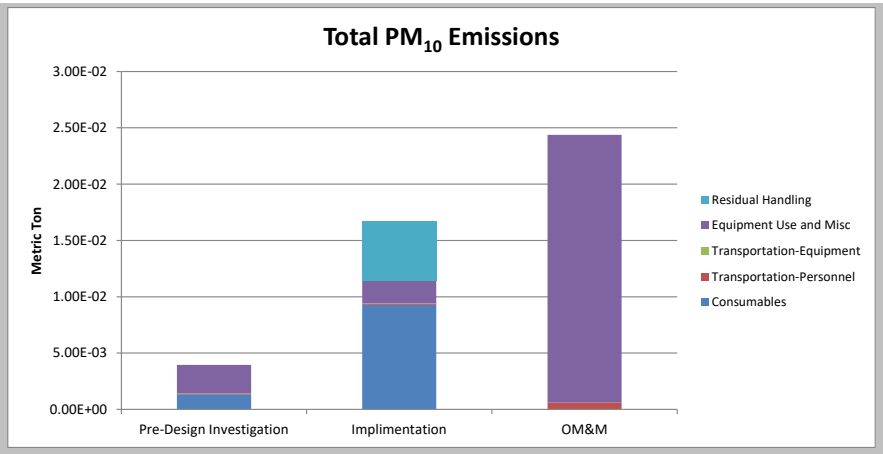

Onsite NOx Emissions
Metric Ton
1.40E-02
1.20E-02
1.00E-02
8.00E-03
6.00E-03
4.00E-03
2.00E-03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

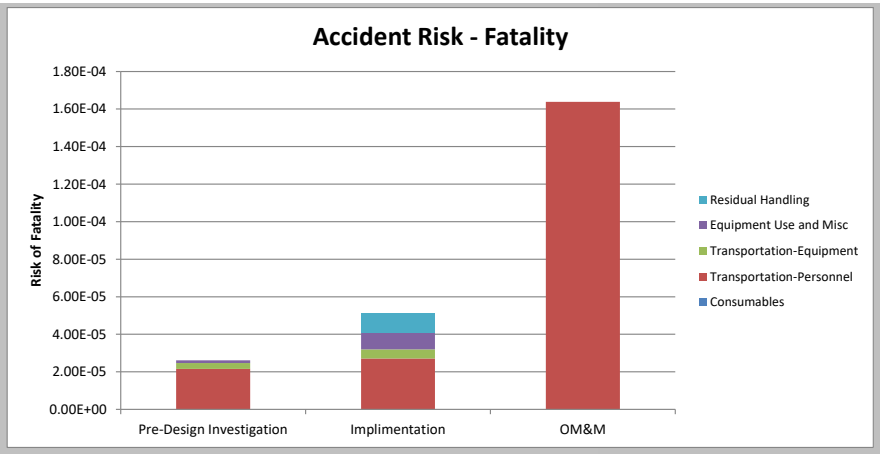

Onsite SOx Emissions
1.40E-03
1.20E-03
1.00E-03
8.00E-04
6.00E-04
4.00E-04
2.00E-04
0.00E+00
Metric Ton
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

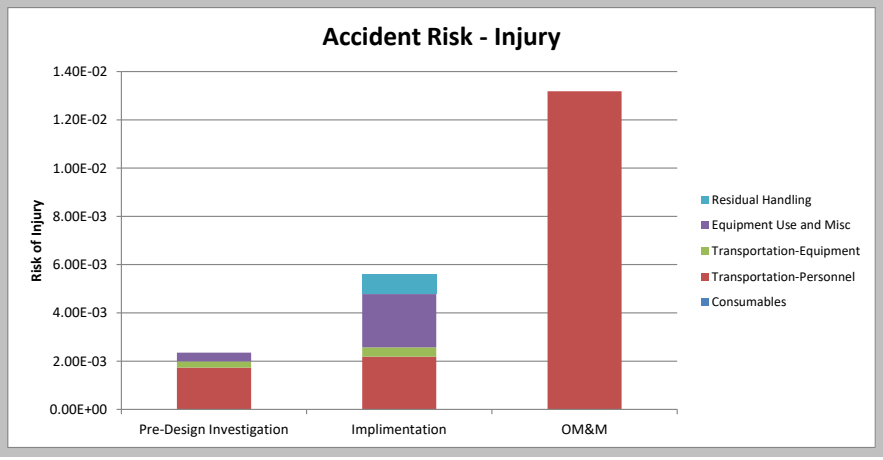

Onsite PM10 Emissions
1.40E-03
1.20E-03
1.00E-03
8.00E-04
6.00E-04
4.00E-04
2.00E-04
0.00E+00
Metric Ton
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

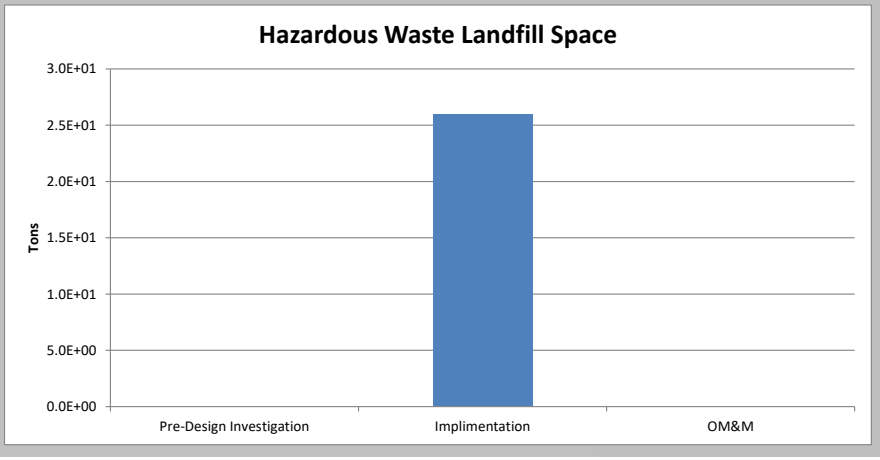

Total NOx Emissions
3.50E-01
3.00E-01
2.50E-01
2.00E-01
1.50E-01
1.00E-01
5.00E-02
0.00E+00
Metric Ton
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

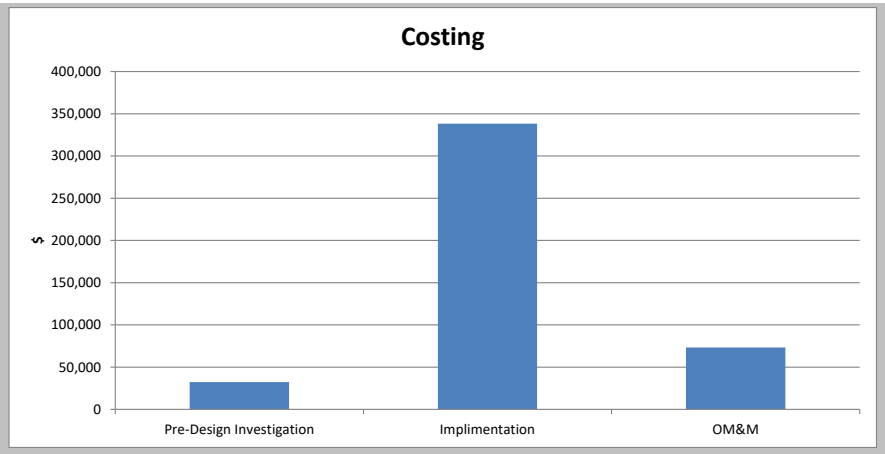

Total SOx Emissions
2.50E-01
2.00E-01
1.50E-01
1.00E-01
5.00E-02
0.00E+00
Metric Ton
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

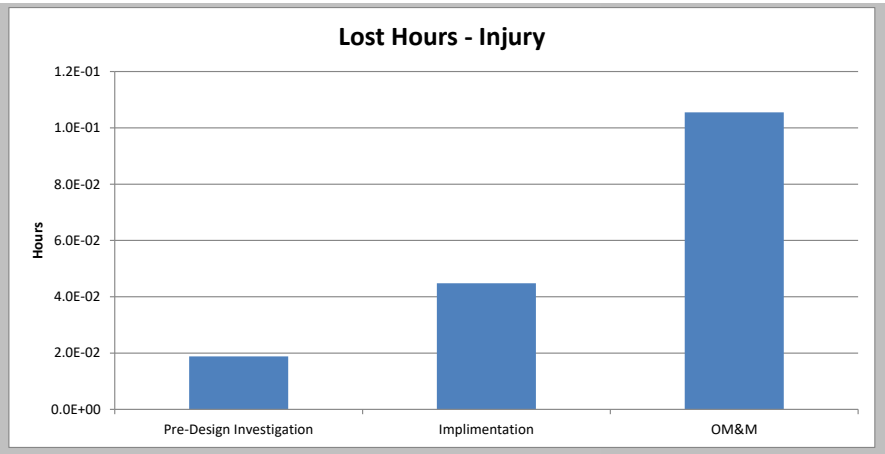

Total PM10 Emissions
Metric Ton
3.00E-02
2.50E-02
2.00E-02
1.50E-02
1.00E-02
5.00E-03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Accident Risk - Fatality
Risk of Fatality
1.80E-04
1.60E-04
1.40E-04
1.20E-04
1.00E-04
8.00E-05
6.00E-05
4.00E-05
2.00E-05
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Accident Risk - Injury
Risk of Injury
1.40E-02
1.20E-02
1.00E-02
8.00E-03
6.00E-03
4.00E-03
2.00E-03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Hazardous Waste Landfill Space
Tons
3.0E+01
2.5E+01
2.0E+01
1.5E+01
1.0E+01
5.0E+00
0.0E+00
Pre-Design Investigation
Implimentation
OM&M


Costing
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
$
Pre-Design Investigation
Implimentation
OM&M


Lost Hours - Injury
1.2E-01
1.0E-01
8.0E-02
6.0E-02
4.0E-02
2.0E-02
0.0E+00
Hours
Pre-Design Investigation
Implimentation
OM&M

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 1 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 32232 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | 4 | | | | | |
| Input depth of wells (ft) | 20 | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 80 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1 1/2 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | 1,000 | | | | | |
| Input total quantity of Gravel (kg) | 0 | | | | | |
| Input total quantity of Bentonite (kg) | 200 | | | | | |
| Input total quantity of Typical Cement (kg) | 1,900 | | | | | |
| Input total quantity of General Concrete (kg) | 0 | | | | | |
| Input total quantity of Steel (kg) | 360 | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Surveyor | Surveyor Oversight | GW Sampling | Drilling Subcontractor | Drilling Oversight | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | Light truck | SUVs | SUVs | Light truck | SUVs | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 270 | 270 | 270 | 270 | 600 | |
| Input number of trips taken | 2 | 2 | 2 | 1 | 1 | |
| Input number of travelers | 1 | 1 | 1 | 1 | 1 | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Storage Trailer | onsturction Equipme | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Diesel | Diesel | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | 135 | 135 | | | | |
| Input weight of equipment transported per truck load (tons) | 2.50 | 3.50 | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Well Construction | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | 4 | | | | | |
| Choose drilling method from drop down menu | Hollow Stem Auger | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | 4.00 | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (hr) (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | Soil Samples | VOC GW | PFAS GW | MNA GW | Analysis 5 | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 900.00 | 595.00 | 3,150.00 | 2,100.00 | | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 2 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 217600 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | | | | | | |
| Input total quantity of Gravel (kg) | | | | | | |
| Input total quantity of Bentonite (kg) | | | | | | |
| Input total quantity of Typical Cement (kg) | | | | | | |
| Input total quantity of General Concrete (kg) | | | | | | |
| Input total quantity of Steel (kg) | | | | | | |

| TREATMENT CHEMICALS & MATERIALS | ELS Microemulsion | KHCO3 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | 1 | 1 | | | | |
| Choose material type from drop down menu | Vegetable Oil | Medium Impact Materia | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | 420 | 50 | | | | |
| Input number of injections per injection point | 1 | 1 | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Asphalt | Crushed Stone | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Asphalt | Gravel | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | cubic feet | cubic feet | pounds | pounds | pounds | pounds |
| Input material quantity | 233 | 243 | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Surveyor | Oversight | njection Subcontracto | Injection Oversight | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | Light truck | SUVs | Light truck | SUVs | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 300 | 600 | 270 | 600 | | |
| Input number of trips taken | 2 | 1 | 4 | 2 | | |
| Input number of travelers | 1 | 1 | 1 | 1 | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Storage Trailer | Excavator and Drill Rig | Clean Fill | Asphalt | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Diesel | Diesel | Diesel | Diesel | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | Yes | Yes | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | 270 | 270 | 50 | 25 | | |
| Input weight of equipment transported per truck load (tons) | 2.00 | 2.50 | 15.00 | 15.00 | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Excavator | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | 17 | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Injection Points | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | 12 | | | | | |
| Choose drilling method from drop down menu | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | 4.00 | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Method 2 - PUMP HEAD IS KNOWN | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Roller | Paver | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Paver | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | 466 | 466 | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | Documentation Sampling | Round 1: Soil | Round 1: GW | Round 2: Soil | Round 2: GW | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 3,060.00 | 1,200.00 | 425.00 | 1,200.00 | 425.00 | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | 15.0 | | | | | |
| Choose fuel used from drop down menu | Diesel | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | 2.0 | | | | | |
| Input number of miles per trip | 650.0 | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | 26.0 | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

| WATER CONSUMPTION | Injections | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | 12000 | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 3 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 76035 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | | | | | | |
| Input total quantity of Gravel (kg) | | | | | | |
| Input total quantity of Bentonite (kg) | | | | | | |
| Input total quantity of Typical Cement (kg) | | | | | | |
| Input total quantity of General Concrete (kg) | | | | | | |
| Input total quantity of Steel (kg) | | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Years 1-5 | Years 6-30 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | SUVs | SUVs | Cars | Cars | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 300 | 300 | | | | |
| Input number of trips taken | 20 | 50 | | | | |
| Input number of travelers | 1 | 1 | | | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | | | | | | |
| Input weight of equipment transported per truck load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | | | | | | |
| Choose drilling method from drop down menu | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Method 2 - PUMP HEAD IS KNOWN | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | PFAS: Years 1-5 | VOCs: Years 6-30 | PFAS: Yeas 6-30 | VOCs: Years 6-30 | MNA: Years 1-5 | MNA: Years 6-30 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 31,500.00 | 5,950.00 | 78,750.00 | 14,875.00 | 7,000.00 | 35,000.00 |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

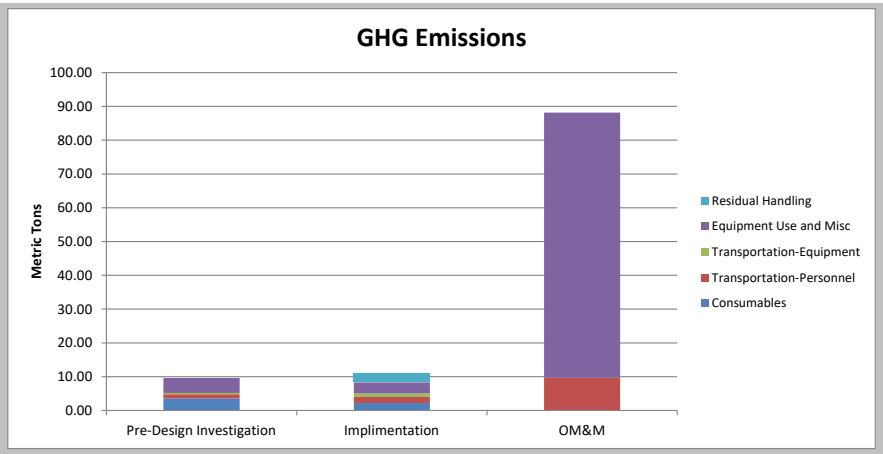
| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

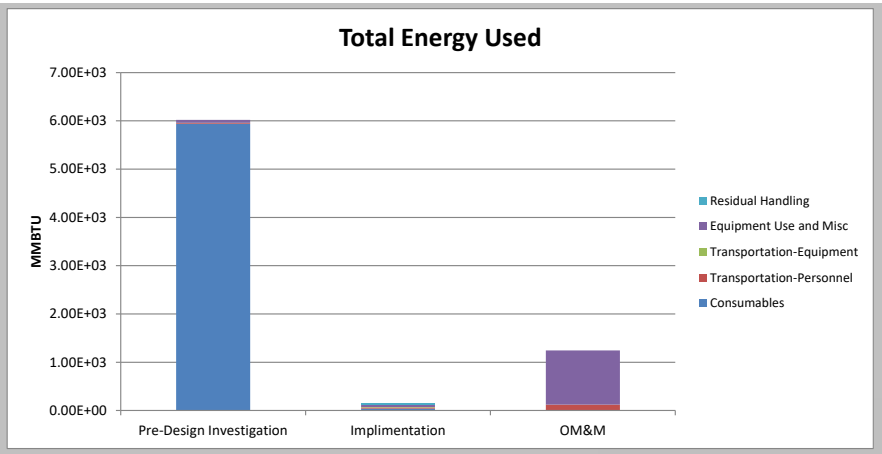
| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

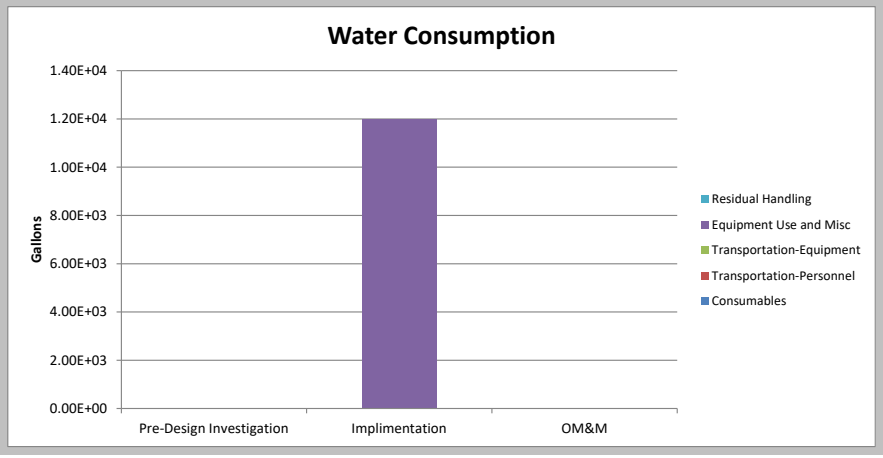
## Sustainable Remediation - Environmental Footprint Summary
## 4b

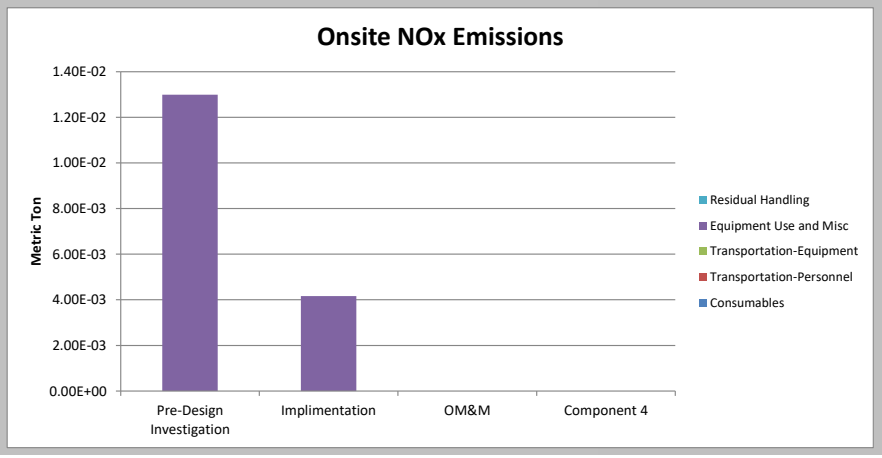
| Phase | Activities | GHG Emissions | Total Energy Used | Water Consumption | Electricity Usage | Onsite NOx Emissions | Onsite SOx Emissions | Onsite PM10 Emissions | Total NOx Emissions | Total SOx Emissions | Total PM10 Emissions | Accident Risk Fatality | Accident Risk Injury |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | metric ton | MMBTU | gallons | MWH | metric ton | metric ton | metric ton | metric ton | metric ton | metric ton | | |
| Pre-Design Investigation | Consumables | 3.58 | 5.9E+03 | NA | NA | NA | NA | NA | 7.2E-03 | 1.0E-02 | 1.3E-03 | NA | NA |
| | Transportation-Personnel | 1.22 | 1.5E+01 | NA | NA | NA | NA | NA | 4.2E-04 | 1.6E-05 | 7.5E-05 | 1.9E-05 | 1.6E-03 |
| | Transportation-Equipment | 0.40 | 5.2E+00 | NA | NA | NA | NA | NA | 1.2E-04 | 2.2E-06 | 1.1E-05 | 2.1E-06 | 1.7E-04 |
| | Equipment Use and Misc | 4.42 | 6.0E+01 | 0.0E+00 | 0.0E+00 | 1.3E-02 | 1.3E-03 | 1.2E-03 | 2.8E-02 | 1.3E-02 | 2.5E-03 | 1.5E-06 | 3.7E-04 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 9.62 | 6.02E+03 | 0.00E+00 | 0.00E+00 | 1.30E-02 | 1.33E-03 | 1.17E-03 | 3.61E-02 | 2.27E-02 | 3.93E-03 | 2.30E-05 | 2.10E-03 |
| Implimentation | Consumables | 2.23 | 3.7E+01 | NA | NA | NA | NA | NA | 4.9E-03 | 9.1E-03 | 2.0E-03 | NA | NA |
| | Transportation-Personnel | 1.75 | 2.2E+01 | NA | NA | NA | NA | NA | 6.4E-04 | 2.3E-05 | 1.1E-04 | 2.7E-05 | 2.2E-03 |
| | Transportation-Equipment | 1.02 | 1.3E+01 | NA | NA | NA | NA | NA | 3.2E-04 | 5.7E-06 | 2.9E-05 | 4.8E-06 | 3.9E-04 |
| | Equipment Use and Misc | 3.33 | 4.6E+01 | 1.2E+04 | 0.0E+00 | 4.2E-03 | 4.3E-04 | 3.7E-04 | 1.8E-02 | 1.1E-02 | 1.6E-03 | 4.4E-06 | 1.1E-03 |
| | Residual Handling | 2.63 | 3.6E+01 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 2.5E-03 | 9.9E-04 | 5.3E-03 | 1.0E-05 | 8.2E-04 |
| | Sub-Total | 10.97 | 1.55E+02 | 1.20E+04 | 0.00E+00 | 4.16E-03 | 4.31E-04 | 3.75E-04 | 2.66E-02 | 2.11E-02 | 9.06E-03 | 4.65E-05 | 4.49E-03 |
| OM&M | Consumables | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | NA | NA |
| | Transportation-Personnel | 9.65 | 1.2E+02 | NA | NA | NA | NA | NA | 3.0E-03 | 1.3E-04 | 6.0E-04 | 1.6E-04 | 1.3E-02 |
| | Transportation-Equipment | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Equipment Use and Misc | 78.51 | 1.1E+03 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 3.8E-01 | 2.8E-01 | 3.1E-02 | 0.0E+00 | 0.0E+00 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 88.16 | 1.24E+03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.80E-01 | 2.83E-01 | 3.20E-02 | 1.64E-04 | 1.32E-02 |
| **Total** | | **1.1E+02** | **7.4E+03** | **1.2E+04** | **0.0E+00** | **1.7E-02** | **1.8E-03** | **1.5E-03** | **4.4E-01** | **3.3E-01** | **4.5E-02** | **2.3E-04** | **2.0E-02** |

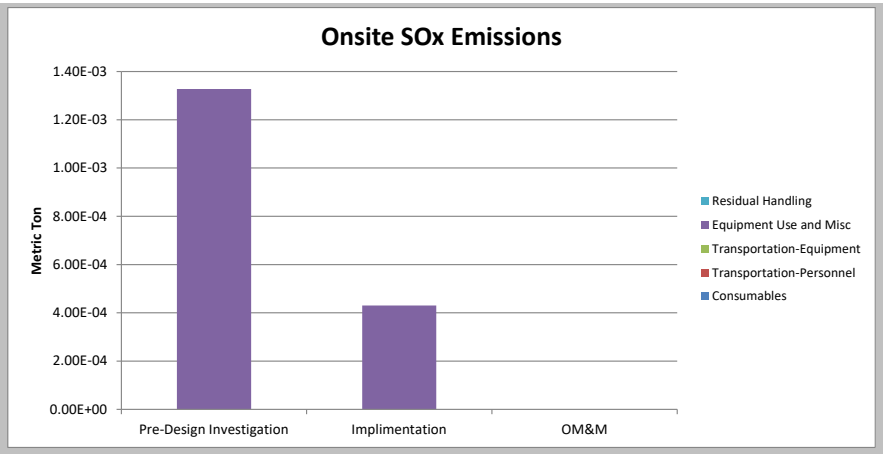
| Remedial Alternative Phase | Non-Hazardous Waste Landfill Space | Hazardous Waste Landfill Space | Topsoil Consumption | Costing | Lost Hours - Injury | Percent electricity from renewable sources | Total Cost with Footprint Reduction |
|---|---|---|---|---|---|---|---|
| | tons | tons | cubic yards | $ | | % | |
| Pre-Design Investigation | 0.0E+00 | 0.0E+00 | 0.0E+00 | 32,232 | 1.7E-02 | 0.0% | $325,867 |
| Implimentation | 0.0E+00 | 2.6E+01 | 0.0E+00 | 217,600 | 3.6E-02 | 0.0% | |
| OM&M | 0.0E+00 | 0.0E+00 | 0.0E+00 | 76,035 | 1.1E-01 | 0.0% | |
| **Total** | **0.0E+00** | **2.6E+01** | **0.0E+00** | **$325,867** | **1.6E-01** | **0.0%** | |

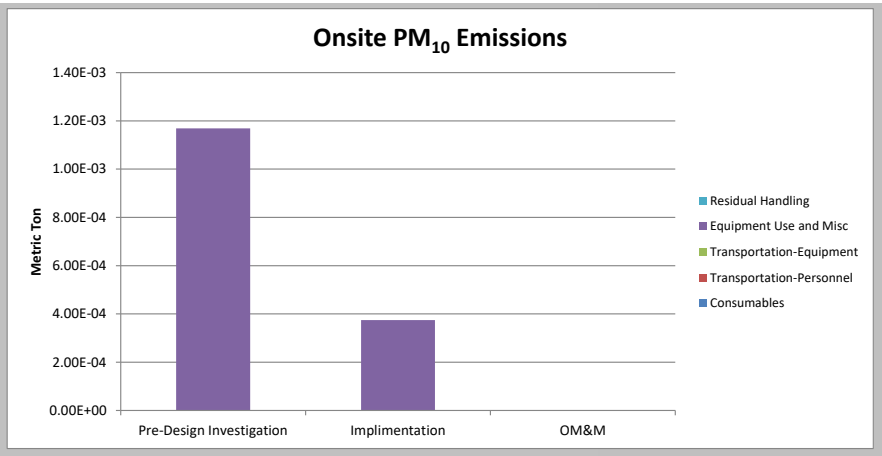

GHG Emissions
Metric Tons
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

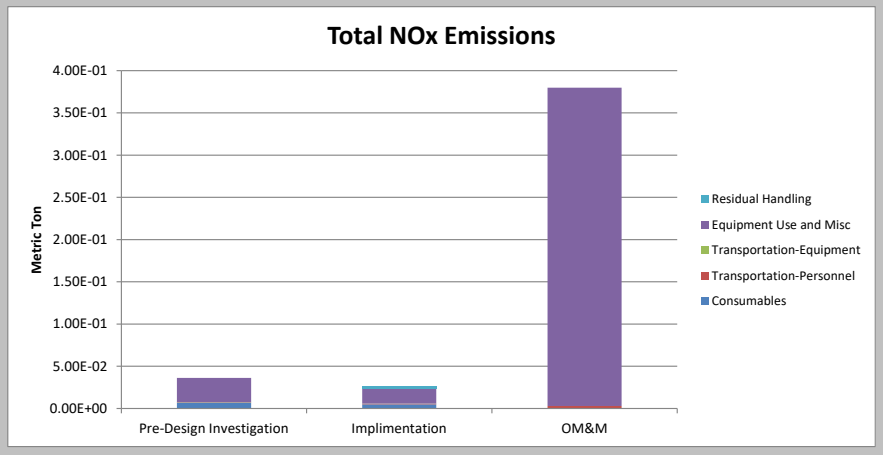

Total Energy Used
MMBTU
7.00E+03
6.00E+03
5.00E+03
4.00E+03
3.00E+03
2.00E+03
1.00E+03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

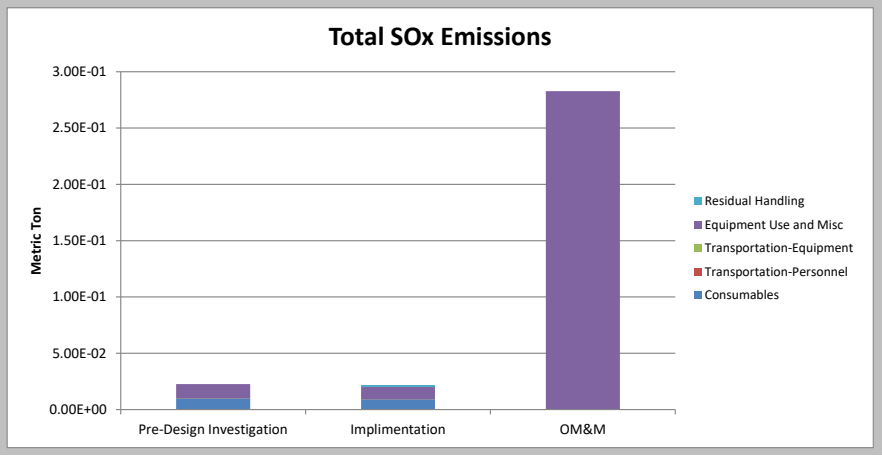

Water Consumption
Gallons
1.40E+04
1.20E+04
1.00E+04
8.00E+03
6.00E+03
4.00E+03
2.00E+03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

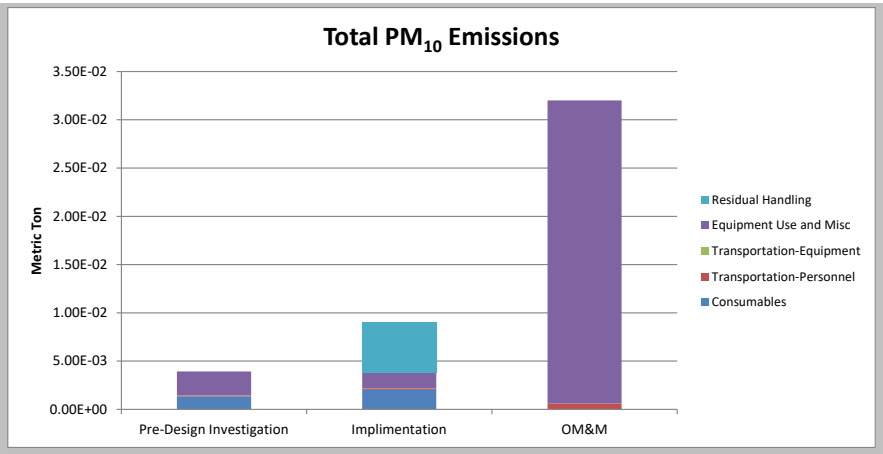

Onsite NOx Emissions
Metric Ton
1.40E-02
1.20E-02
1.00E-02
8.00E-03
6.00E-03
4.00E-03
2.00E-03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

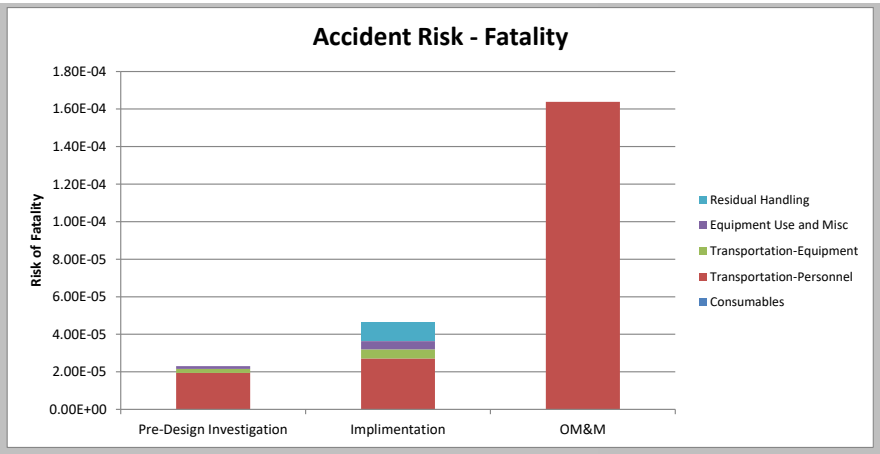

Onsite SOx Emissions
Metric Ton
1.40E-03
1.20E-03
1.00E-03
8.00E-04
6.00E-04
4.00E-04
2.00E-04
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

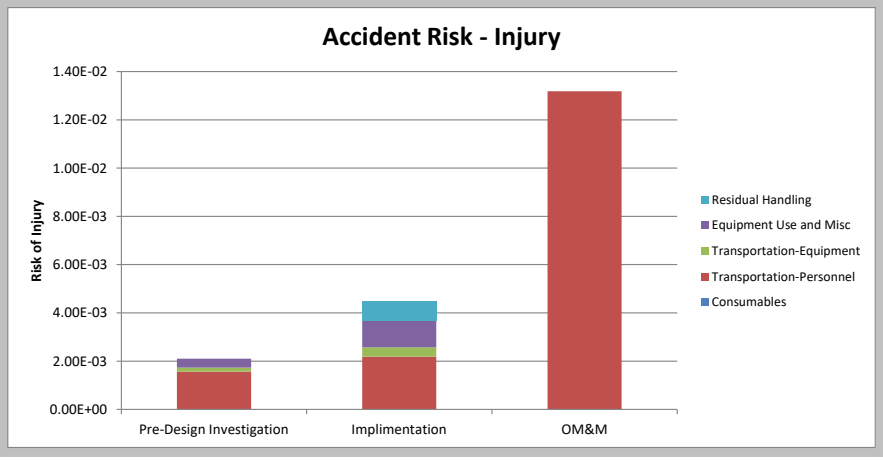

Onsite PM10 Emissions
Metric Ton
1.40E-03
1.20E-03
1.00E-03
8.00E-04
6.00E-04
4.00E-04
2.00E-04
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

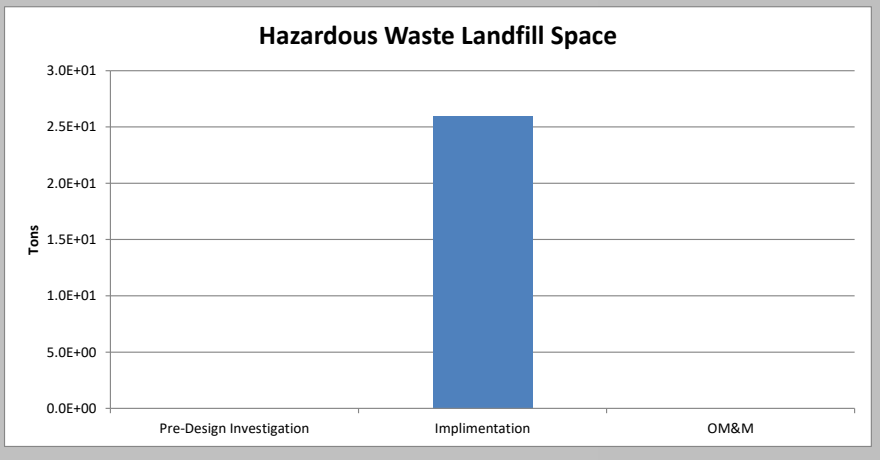

Total NOx Emissions
Metric Ton
4.00E-01
3.50E-01
3.00E-01
2.50E-01
2.00E-01
1.50E-01
1.00E-01
5.00E-02
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

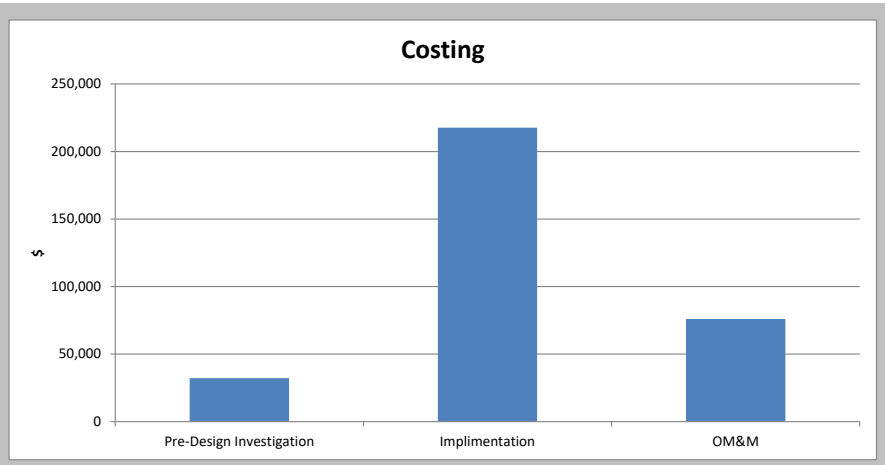

Total SOx Emissions
Metric Ton
3.00E-01
2.50E-01
2.00E-01
1.50E-01
1.00E-01
5.00E-02
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

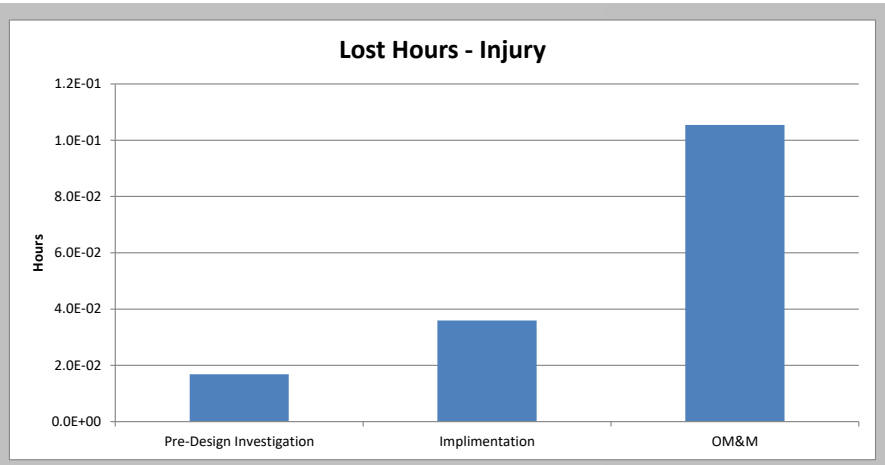

Total PM10 Emissions
Metric Ton
3.50E-02
3.00E-02
2.50E-02
2.00E-02
1.50E-02
1.00E-02
5.00E-03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Accident Risk - Fatality
Risk of Fatality
1.80E-04
1.60E-04
1.40E-04
1.20E-04
1.00E-04
8.00E-05
6.00E-05
4.00E-05
2.00E-05
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Accident Risk - Injury
Risk of Injury
1.40E-02
1.20E-02
1.00E-02
8.00E-03
6.00E-03
4.00E-03
2.00E-03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Hazardous Waste Landfill Space
Tons
3.0E+01
2.5E+01
2.0E+01
1.5E+01
1.0E+01
5.0E+00
0.0E+00
Pre-Design Investigation
Implimentation
OM&M


Costing
250,000
200,000
150,000
100,000
50,000
0
$
Pre-Design Investigation
Implimentation
OM&M


Lost Hours - Injury
1.2E-01
1.0E-01
8.0E-02
6.0E-02
4.0E-02
2.0E-02
0.0E+00
Hours
Pre-Design Investigation
Implimentation
OM&M

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 1 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 26332 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | 4 | | | | | |
| Input depth of wells (ft) | 20 | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 80 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1 1/2 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | 1,000 | | | | | |
| Input total quantity of Gravel (kg) | 0 | | | | | |
| Input total quantity of Bentonite (kg) | 200 | | | | | |
| Input total quantity of Typical Cement (kg) | 1,900 | | | | | |
| Input total quantity of General Concrete (kg) | 0 | | | | | |
| Input total quantity of Steel (kg) | 360 | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Property Survey | Surveyor Oversight | GW Sampling | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | Light truck | SUVs | SUVs | Cars | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 270 | 600 | 270 | | | |
| Input number of trips taken | 2 | 3 | 2 | | | |
| Input number of travelers | 1 | 1 | 1 | | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Storage Trailer | Consturction Equipmer | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Diesel | Diesel | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | 135 | 135 | | | | |
| Input weight of equipment transported per truck load (tons) | 2.50 | 3.50 | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Well Construction | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | 4 | | | | | |
| Choose drilling method from drop down menu | Hollow Stem Auger | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | 4.00 | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (hr) (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| | | | | | | |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | Soil Samples | VOC GW | PFAS GW | MNA GW | Analysis 5 | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 1,800.00 | 595.00 | 3,150.00 | 2,100.00 | | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |

| | |
|---|---|
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 2 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 258588 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | | | | | | |
| Input total quantity of Gravel (kg) | | | | | | |
| Input total quantity of Bentonite (kg) | | | | | | |
| Input total quantity of Typical Cement (kg) | | | | | | |
| Input total quantity of General Concrete (kg) | | | | | | |
| Input total quantity of Steel (kg) | | | | | | |

| TREATMENT CHEMICALS & MATERIALS | NaOH | Klozur | ELS | pH Buffer | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | 1 | 1 | 1 | 1 | | |
| Choose material type from drop down menu | dium Hydroxide (dry, bu | Medium Impact Materia | Vegetable Oil | Medium Impact Materia | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | 4200 | 10580 | 140 | 20 | | |
| Input number of injections per injection point | 1 | 1 | 1 | 1 | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | | | Injection Subcontracto | Injection Oversight | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | Light truck | SUVs | Light truck | SUVs | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | | | 270 | 600 | | |
| Input number of trips taken | | | 5 | 3 | | |
| Input number of travelers | | | 1 | 1 | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |
| *For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab. | | | | | | |

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Storage Trailer | Drill Rig | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Diesel | Diesel | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | 270 | 270 | | | | |
| Input weight of equipment transported per truck load (tons) | 2.00 | 1.50 | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Injection points | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | 16 | | | | | |
| Choose drilling method from drop down menu | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | 8.00 | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| | | | | | | |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | Documentation Sampling | Round 1: Soil | Round 1: GW | Round 2: Soil | Round 2: GW | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 3,060.00 | 1,200.00 | 510.00 | 1,200.00 | 510.00 | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|

| | |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | 15000 | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 3 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 76035 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | | | | | | |
| Input total quantity of Gravel (kg) | | | | | | |
| Input total quantity of Bentonite (kg) | | | | | | |
| Input total quantity of Typical Cement (kg) | | | | | | |
| Input total quantity of General Concrete (kg) | | | | | | |
| Input total quantity of Steel (kg) | | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Years 1-5 | Years 6-30 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | SUVs | SUVs | Cars | Cars | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 300 | 300 | | | | |
| Input number of trips taken | 20 | 50 | | | | |
| Input number of travelers | 1 | 1 | | | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | | | | | | |
| Input weight of equipment transported per truck load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | | | | | | |
| Choose drilling method from drop down menu | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) | Research Vessel (large) |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| | | | | | | |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C | awler Crane, 25 ton, 1 C |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | PFAS: Years 1-5 | VOCs: Years 6-30 | PFAS: Yeas 6-30 | VOCs: Years 6-30 | | |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 31,500.00 | 5,950.00 | 78,750.00 | 14,875.00 | | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|

| | |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

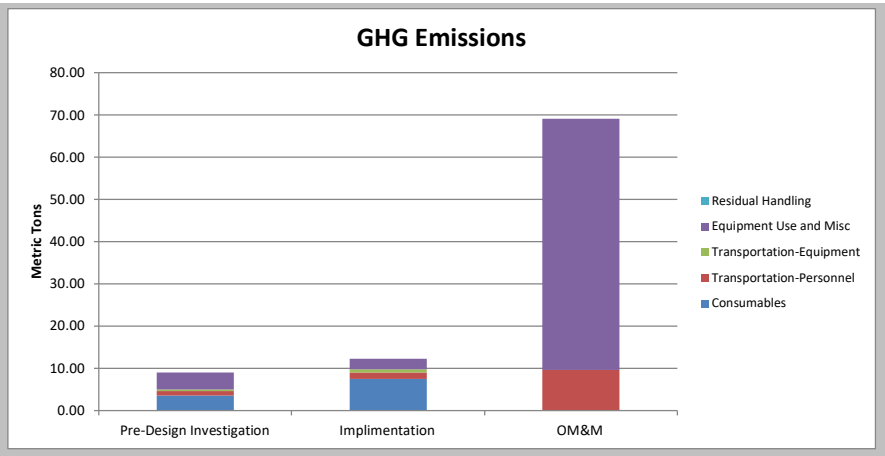
| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

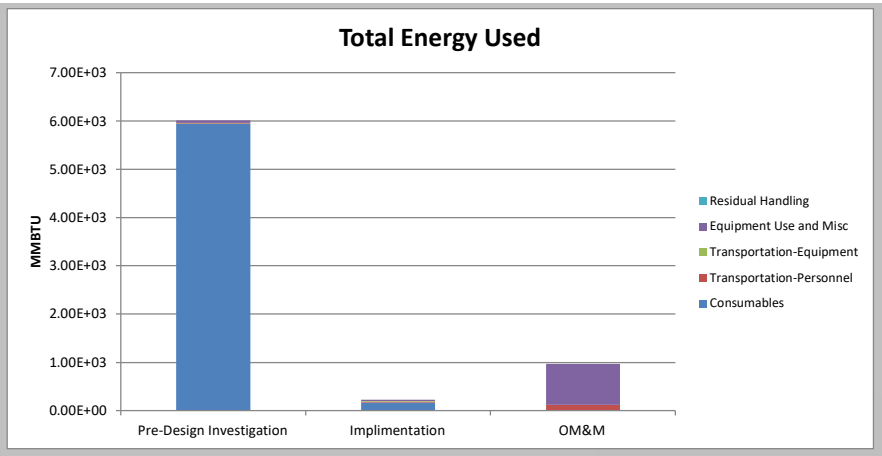
| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

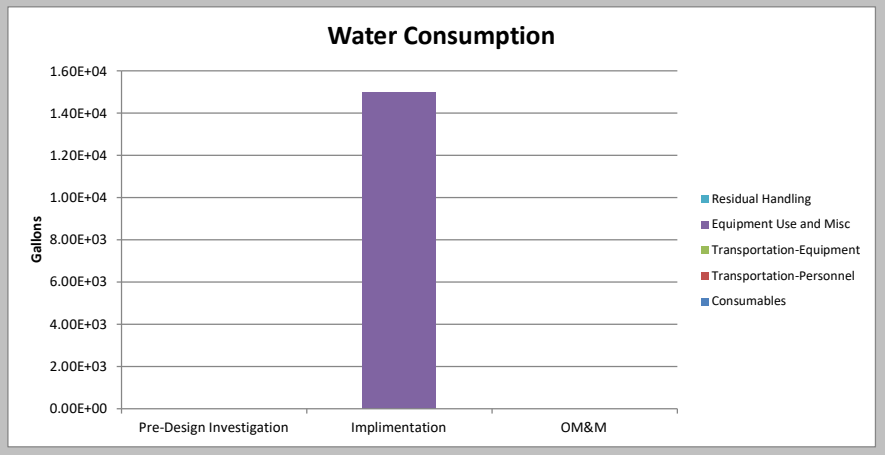
## Sustainable Remediation - Environmental Footprint Summary
## 5

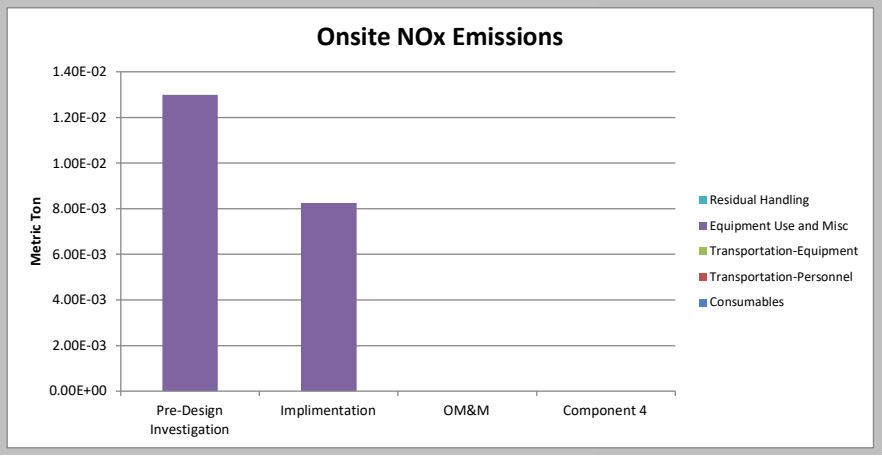
| Phase | Activities | GHG Emissions | Total Energy Used | Water Consumption | Electricity Usage | Onsite NOx Emissions | Onsite SOx Emissions | Onsite PM10 Emissions | Total NOx Emissions | Total SOx Emissions | Total PM10 Emissions | Accident Risk Fatality | Accident Risk Injury |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | metric ton | MMBTU | gallons | MWH | metric ton | metric ton | metric ton | metric ton | metric ton | metric ton | | |
| Pre-Design Investigation | Consumables | 3.58 | 5.9E+03 | NA | NA | NA | NA | NA | 7.2E-03 | 1.0E-02 | 1.3E-03 | NA | NA |
| | Transportation-Personnel | 1.05 | 1.3E+01 | NA | NA | NA | NA | NA | 3.5E-04 | 1.4E-05 | 6.6E-05 | 1.8E-05 | 1.4E-03 |
| | Transportation-Equipment | 0.40 | 5.2E+00 | NA | NA | NA | NA | NA | 1.2E-04 | 2.2E-06 | 1.1E-05 | 2.1E-06 | 1.7E-04 |
| | Equipment Use and Misc | 4.01 | 5.4E+01 | 0.0E+00 | 0.0E+00 | 1.3E-02 | 1.3E-03 | 1.2E-03 | 2.6E-02 | 1.1E-02 | 2.3E-03 | 1.5E-06 | 3.7E-04 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 9.04 | 6.01E+03 | 0.00E+00 | 0.00E+00 | 1.30E-02 | 1.33E-03 | 1.17E-03 | 3.41E-02 | 2.12E-02 | 3.76E-03 | 2.14E-05 | 1.97E-03 |
| Implimentation | Consumables | 7.47 | 1.7E+02 | NA | NA | NA | NA | NA | 2.2E-02 | 3.7E-02 | 7.5E-03 | NA | NA |
| | Transportation-Personnel | 1.57 | 2.0E+01 | NA | NA | NA | NA | NA | 5.6E-04 | 2.1E-05 | 9.6E-05 | 2.5E-05 | 2.0E-03 |
| | Transportation-Equipment | 0.78 | 1.0E+01 | NA | NA | NA | NA | NA | 2.4E-04 | 4.3E-06 | 2.2E-05 | 4.2E-06 | 3.4E-04 |
| | Equipment Use and Misc | 2.45 | 3.3E+01 | 1.5E+04 | 0.0E+00 | 8.3E-03 | 8.4E-04 | 7.4E-04 | 1.6E-02 | 6.7E-03 | 1.5E-03 | 8.8E-06 | 2.2E-03 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 12.27 | 2.28E+02 | 1.50E+04 | 0.00E+00 | 8.26E-03 | 8.44E-04 | 7.43E-04 | 3.94E-02 | 4.40E-02 | 9.12E-03 | 3.76E-05 | 4.52E-03 |
| OM&M | Consumables | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | NA | NA |
| | Transportation-Personnel | 9.65 | 1.2E+02 | NA | NA | NA | NA | NA | 3.0E-03 | 1.3E-04 | 6.0E-04 | 1.6E-04 | 1.3E-02 |
| | Transportation-Equipment | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Equipment Use and Misc | 59.45 | 8.5E+02 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 2.9E-01 | 2.1E-01 | 2.4E-02 | 0.0E+00 | 0.0E+00 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 69.11 | 9.72E+02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.88E-01 | 2.14E-01 | 2.44E-02 | 1.64E-04 | 1.32E-02 |
| **Total** | | **9.0E+01** | **7.2E+03** | **1.5E+04** | **0.0E+00** | **2.1E-02** | **2.2E-03** | **1.9E-03** | **3.6E-01** | **2.8E-01** | **3.7E-02** | **2.2E-04** | **2.0E-02** |

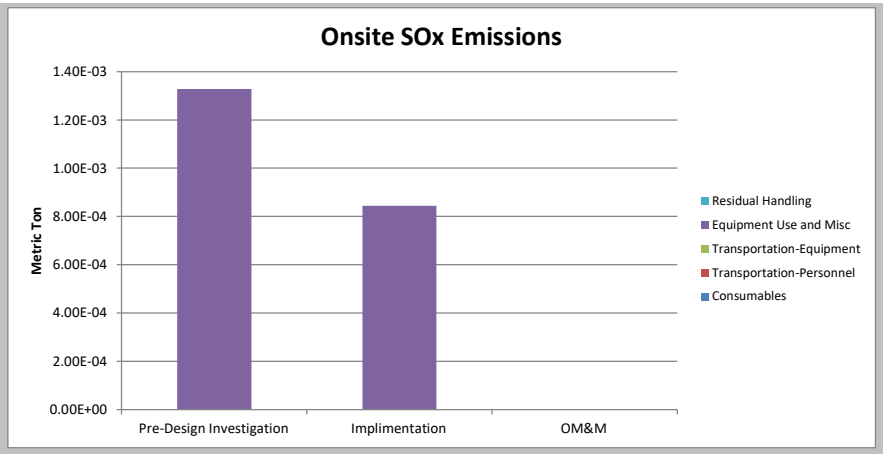
| Remedial Alternative Phase | Non-Hazardous Waste Landfill Space | Hazardous Waste Landfill Space | Topsoil Consumption | Costing | Lost Hours - Injury | Percent electricity from renewable sources | Total Cost with Footprint Reduction |
|---|---|---|---|---|---|---|---|
| | tons | tons | cubic yards | $ | | % | |
| Pre-Design Investigation | 0.0E+00 | 0.0E+00 | 0.0E+00 | 26,332 | 1.6E-02 | 0.0% | $360,955 |
| Implimentation | 0.0E+00 | 0.0E+00 | 0.0E+00 | 258,588 | 3.6E-02 | 0.0% | |
| OM&M | 0.0E+00 | 0.0E+00 | 0.0E+00 | 76,035 | 1.1E-01 | 0.0% | |
| Total | 0.0E+00 | 0.0E+00 | 0.0E+00 | $360,955 | 1.6E-01 | 0.0% | |

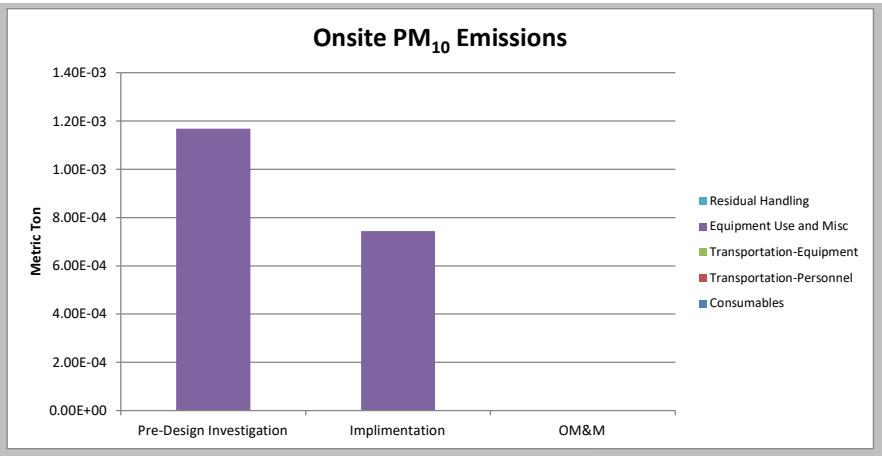

GHG Emissions
Metric Tons
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

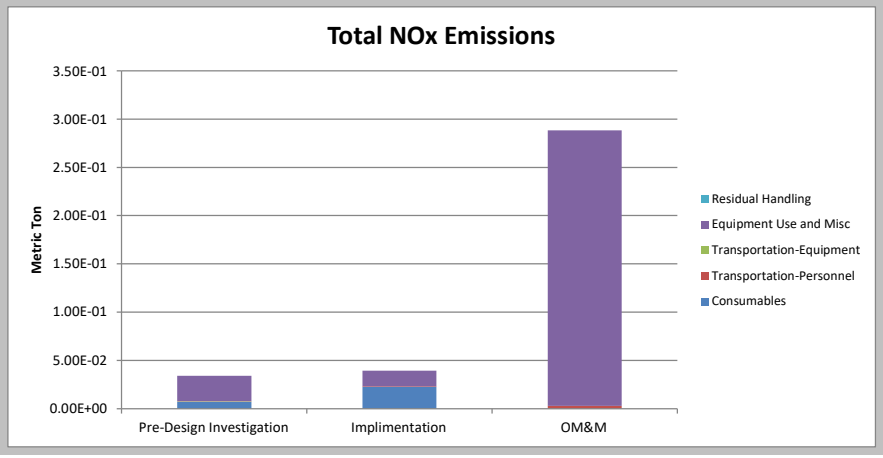

Total Energy Used
MMBTU
7.00E+03
6.00E+03
5.00E+03
4.00E+03
3.00E+03
2.00E+03
1.00E+03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

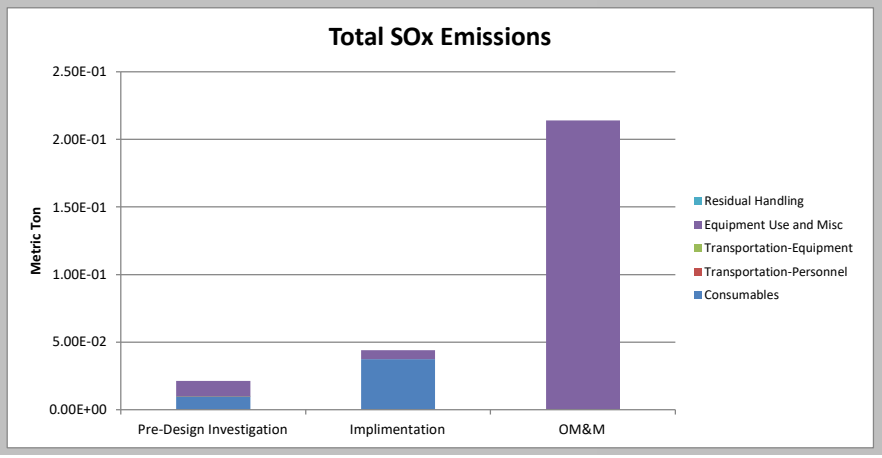

Water Consumption
Gallons
1.60E+04
1.40E+04
1.20E+04
1.00E+04
8.00E+03
6.00E+03
4.00E+03
2.00E+03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

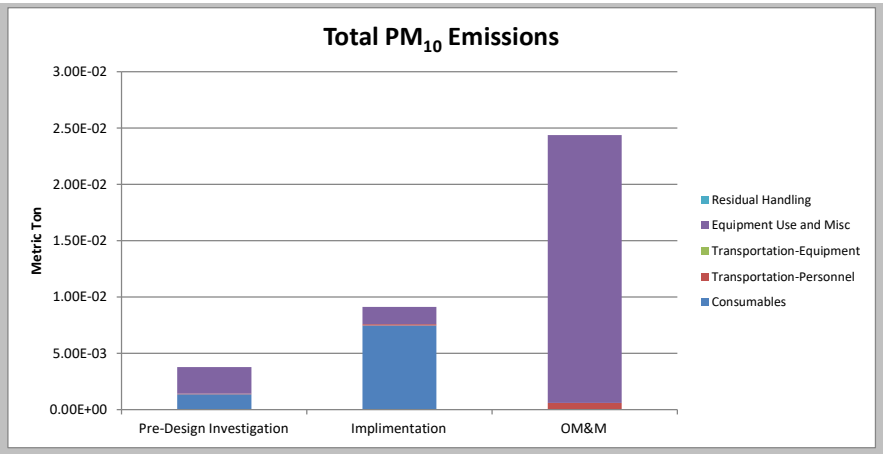

Onsite NOx Emissions
Metric Ton
1.40E-02
1.20E-02
1.00E-02
8.00E-03
6.00E-03
4.00E-03
2.00E-03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

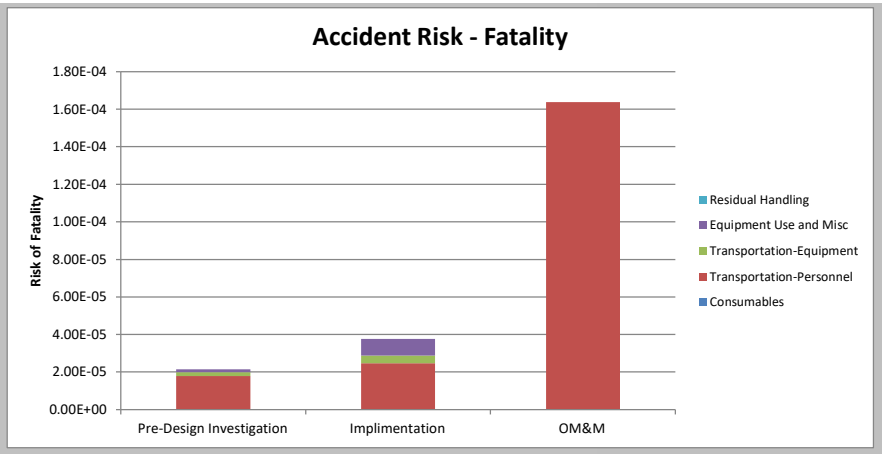

Onsite SOx Emissions
1.40E-03
1.20E-03
1.00E-03
8.00E-04
6.00E-04
4.00E-04
2.00E-04
0.00E+00
Metric Ton
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

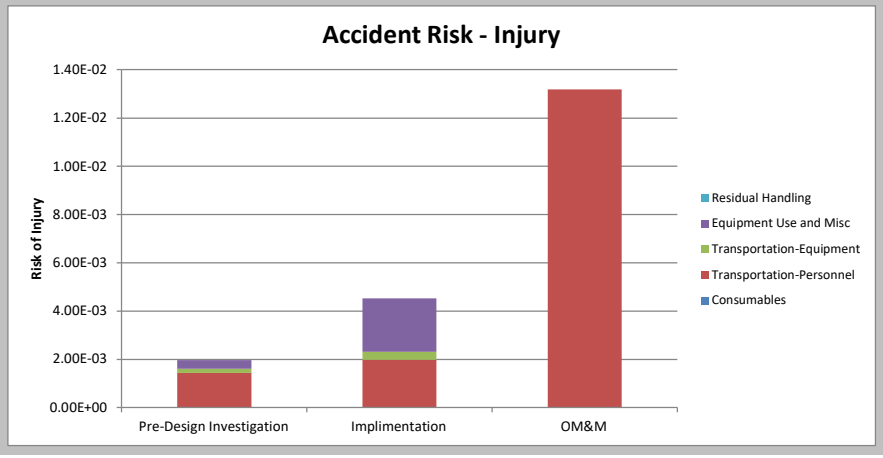

Onsite PM10 Emissions
1.40E-03
1.20E-03
1.00E-03
8.00E-04
6.00E-04
4.00E-04
2.00E-04
0.00E+00
Metric Ton
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

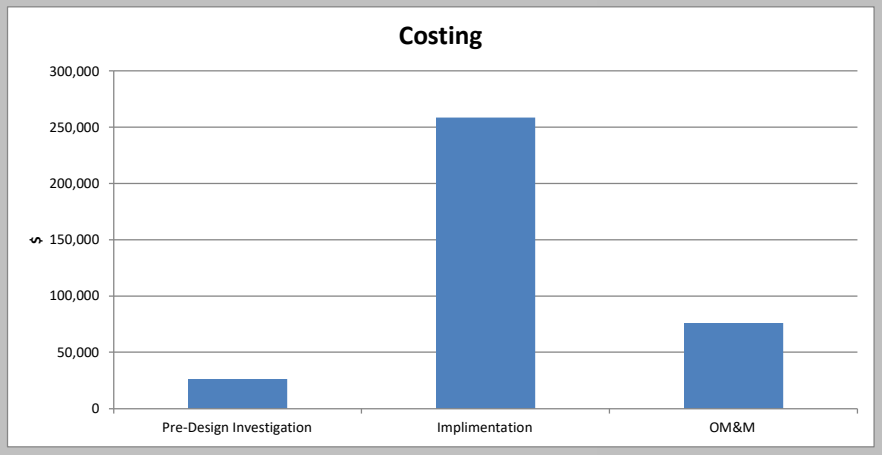

Total NOx Emissions
3.50E-01
3.00E-01
2.50E-01
2.00E-01
1.50E-01
1.00E-01
5.00E-02
0.00E+00
Metric Ton
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

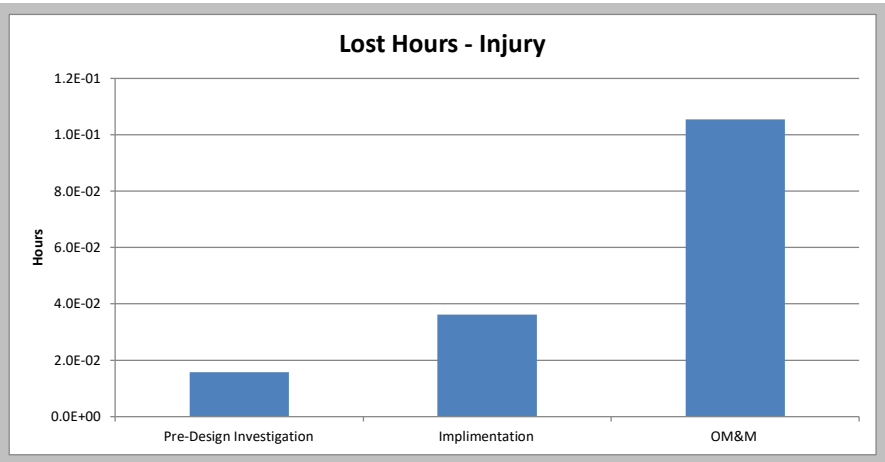

Total SOx Emissions
2.50E-01
2.00E-01
1.50E-01
1.00E-01
5.00E-02
0.00E+00
Metric Ton
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Total PM10 Emissions
Metric Ton
3.00E-02
2.50E-02
2.00E-02
1.50E-02
1.00E-02
5.00E-03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Accident Risk - Fatality
Risk of Fatality
1.80E-04
1.60E-04
1.40E-04
1.20E-04
1.00E-04
8.00E-05
6.00E-05
4.00E-05
2.00E-05
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Accident Risk - Injury
Risk of Injury
1.40E-02
1.20E-02
1.00E-02
8.00E-03
6.00E-03
4.00E-03
2.00E-03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Costing
$
300,000
250,000
200,000
150,000
100,000
50,000
0
Pre-Design Investigation
Implimentation
OM&M


Lost Hours - Injury
1.2E-01
1.0E-01
8.0E-02
6.0E-02
4.0E-02
2.0E-02
0.0E+00
Hours
Pre-Design Investigation
Implimentation
OM&M

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 1 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 22832 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | 4 | | | | | |
| Input depth of wells (ft) | 20 | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 80 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1 1/2 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | 1,000 | | | | | |
| Input total quantity of Gravel (kg) | 0 | | | | | |
| Input total quantity of Bentonite (kg) | 200 | | | | | |
| Input total quantity of Typical Cement (kg) | 1,900 | | | | | |
| Input total quantity of General Concrete (kg) | 0 | | | | | |
| Input total quantity of Steel (kg) | 360 | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | GW Sampling | Drilling Subcontractor | Drilling Oversight | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | SUVs | Light truck | SUVs | Cars | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 270 | 270 | 600 | | | |
| Input number of trips taken | 2 | 1 | 1 | | | |
| Input number of travelers | 1 | 1 | 1 | | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Storage Trailer | Consturction Equipmer | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Diesel | Diesel | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | 135 | 135 | | | | |
| Input weight of equipment transported per truck load (tons) | 2.50 | 3.50 | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Well Construction | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | 4 | | | | | |
| Choose drilling method from drop down menu | Hollow Stem Auger | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | 4.00 | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (hr) (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | Soil Samples | VOC GW | PFAS GW | MNA GW | Analysis 5 | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 900.00 | 595.00 | 3,150.00 | 2,100.00 | | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 2 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 25000 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | | | | | | |
| Input total quantity of Gravel (kg) | | | | | | |
| Input total quantity of Bentonite (kg) | | | | | | |
| Input total quantity of Typical Cement (kg) | | | | | | |
| Input total quantity of General Concrete (kg) | | | | | | |
| Input total quantity of Steel (kg) | | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | Cars | Cars | Cars | Cars | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | | | | | | |
| Input weight of equipment transported per truck load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | | | | | | |
| Choose drilling method from drop down menu | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | Analysis 1 | Analysis 2 | Analysis 3 | Analysis 4 | Analysis 5 | Analysis 6 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | | | | | | |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

**BASELINE INFORMATION**

| COMPONENT 3 DURATION AND COST | Entire Site |
|---|---|
| Input duration of the component (unit time) | 1 |
| Input component cost per unit time ($) | 76035 |

**MATERIAL PRODUCTION**

| WELL MATERIALS | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Choose specific casing material schedule from drop down menu | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC | Sch 40 PVC |
| Choose well diameter (in) from drop down menu | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 |
| Input total quantity of Sand (kg) | | | | | | |
| Input total quantity of Gravel (kg) | | | | | | |
| Input total quantity of Bentonite (kg) | | | | | | |
| Input total quantity of Typical Cement (kg) | | | | | | |
| Input total quantity of General Concrete (kg) | | | | | | |
| Input total quantity of Steel (kg) | | | | | | |

| TREATMENT CHEMICALS & MATERIALS | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input number of injection points | | | | | | |
| Choose material type from drop down menu | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide | Hydrogen Peroxide |
| Input amount of material injected at each point (pounds dry mass) | | | | | | |
| Input number of injections per injection point | | | | | | |

| TREATMENT MEDIA | Treatment 1 | Treatment 2 | Treatment 3 | Treatment 4 | Treatment 5 | Treatment 6 |
|---|---|---|---|---|---|---|
| Input weight of media used (lbs) | | | | | | |
| Choose media type from drop down menu | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC | Virgin GAC |

| CONSTRUCTION MATERIALS | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material type from drop down menu | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner | HDPE Liner |
| Input area of material (ft2) | | | | | | |
| Input depth of material (ft) | | | | | | |

| WELL DECOMMISSIONING | Well Type 1 | Well Type 2 | Well Type 3 | Well Type 4 | Well Type 5 | Well Type 6 |
|---|---|---|---|---|---|---|
| Input number of wells | | | | | | |
| Input depth of wells (ft) | | | | | | |
| Input well diameter (in) | | | | | | |
| Choose material from drop down menu | Soil | Soil | Soil | Soil | Soil | Soil |

| SILT CURTAIN MATERIALS | Curtain 1 | Curtain 2 | Curtain 3 | Curtain 4 | Curtain 5 | Curtain 6 |
|---|---|---|---|---|---|---|
| Input length or perimeter of silt curtain (ft) | | | | | | |
| Input depth of silt curtain (ft) | | | | | | |

| BULK MATERIAL QUANTITIES | Material 1 | Material 2 | Material 3 | Material 4 | Material 5 | Material 6 |
|---|---|---|---|---|---|---|
| Choose material from drop down menu | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid | Acetic Acid |
| Choose units of material quantity from drop down menu | pounds | pounds | pounds | pounds | pounds | pounds |
| Input material quantity | | | | | | |

**TRANSPORTATION**

| PERSONNEL TRANSPORTATION - ROAD | Years 1-5 | Years 6-30 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose vehicle type from drop down menu* | SUVs | SUVs | Cars | Cars | Cars | Cars |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input distance traveled per trip (miles) | 300 | 300 | | | | |
| Input number of trips taken | 20 | 50 | | | | |
| Input number of travelers | 1 | 1 | | | | |
| Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool) | | | | | | |

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

| PERSONNEL TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input number of travelers | | | | | | |
| Input number of flights taken | | | | | | |

| PERSONNEL TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Choose vehicle type from drop down menu | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail | Intercity rail |
| Input distance traveled (miles) | | | | | | |
| Input number of trips taken | | | | | | |
| Input number of travelers | | | | | | |

| EQUIPMENT TRANSPORTATION - DEDICATED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Account for an empty return trip? | No | No | No | No | No | No |
| Input one-way distance traveled (miles) with a given load. If applicable, impact for an empty return trip will be accounted for (no additional input is needed). | | | | | | |
| Input weight of equipment transported per truck load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - SHARED LOAD ROAD | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - AIR | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of equipment transported (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - RAIL | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (miles) | | | | | | |
| Input weight of load (tons) | | | | | | |

| EQUIPMENT TRANSPORTATION - WATER | Trip 1 | Trip 2 | Trip 3 | Trip 4 | Trip 5 | Trip 6 |
|---|---|---|---|---|---|---|
| Input distance traveled (mile) | | | | | | |
| Input weight of load (tons) | | | | | | |

**EQUIPMENT USE**

| EARTHWORK | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| DRILLING | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 |
|---|---|---|---|---|---|---|
| Input number of drilling locations | | | | | | |
| Choose drilling method from drop down menu | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push | Direct Push |
| Input time spent drilling at each location (hr) | | | | | | |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |

| TRENCHING | Trencher 1 | Trencher 2 | Trencher 3 | Trencher 4 | Trencher 5 | Trencher 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input operating hours (hr) | | | | | | |

| SEDIMENT DREDGING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose dredge equipment type from drop down menu | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical | Mechanical |
| Choose dredge fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be dredged (yd3) | | | | | | |
| Choose dredge equipment size | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Suggested dredge equipment size | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 | wler Crane, 25 ton, 1 |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose dredge tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 2 | 2 | 2 | 2 | 2 | 2 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT MANAGEMENT (STAGING AND DRYING) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose earthwork equipment type from drop down menu | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane | Crawler Crane |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of material to be removed (yd3) | | | | | | |
| Is volume input that of saturated sediment? | Yes | Yes | Yes | Yes | Yes | Yes |
| Will the sediment be dry when this work is performed? | No | No | No | No | No | No |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| SEDIMENT CAPPING | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose capping method from drop down menu | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release | Surface Release |
| Choose capping equipment fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input volume of capping material to be placed (yd3) | | | | | | |
| Choose capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Suggested capping equipment size/type | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge | Hopper Barge |
| Input number of dredge tenders (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Choose tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for dredge tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of scow tenders (default already present, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose scow tender fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating time for scow tenders (hr) (default calculated value, user override possible) | 0 | 0 | 0 | 0 | 0 | 0 |
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of research vessels (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| Input operating time for research vessels (hr) (default calculated value, user override possibl | 0 | 0 | 0 | 0 | 0 | 0 |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| WATERCRAFT OPERATION | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose size of research vessel from drop down menu | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large | Research Vessel (large |
| Choose research vessel fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input number of vessels | | | | | | |
| Input operating time (hours) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

| PUMP OPERATION | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| **Method 1 - ELECTRICAL USAGE IS KNOWN** | | | | | | |
| Input pump electrical usage (KWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Method 2 - PUMP HEAD IS KNOWN** | | | | | | |
| Input flow rate (gpm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input total head (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Pump efficiency (default already present, user override possible) | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Input specific gravity (default already present, user override possible) | 1 | 1 | 1 | 1 | 1 | 1 |
| **Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN** | | | | | | |
| Input pump horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of pumps operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each pump (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for pump motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Pump load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input pump load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Pump motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| **Region** | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| DIESEL AND GASOLINE PUMPS | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Pump 5 | Pump 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 | 2-Stroke: 0 to 1 |
| Equipment operating hours (hrs) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool) | | | | | | |

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

| BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose type of equipment from drop down | Blower | Blower | Blower | Blower | Blower | Blower |
| Choose method from drop down | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 | Method 1 |
| Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN | | | | | | |
| Input equipment horsepower (hp) | 0 | 0 | 0 | 0 | 0 | 0 |
| Input number of equipments operating | 0 | 0 | 0 | 0 | 0 | 0 |
| Input operating time for each equipment (hrs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Percent of max speed for motor (Optional input for variable speed motor) | 100% | 100% | 100% | 100% | 100% | 100% |
| Equipment load if max motor speed draws full nameplate horsepower | 1 | 1 | 1 | 1 | 1 | 1 |
| Input equipment load (default already present, user override possible, consider above value) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Equipment motor efficiency (default already present, user override possible) | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Method 2 - ELECTRICAL USAGE IS KNOWN | | | | | | |
| Input equipment electrical usage, if known (kWh) | 0 | 0 | 0 | 0 | 0 | 0 |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| GENERATORS | Generator 1 | Generator 2 | Generator 3 | Generator 4 | Generator 5 | Generator 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 | 0 to 1 |
| Input operating hours (hr) | | | | | | |

| AGRICULTURAL EQUIPMENT | Tillage Tractor 1 | Tillage Tractor 2 | Tillage Tractor 3 | Tillage Tractor 4 | Tillage Tractor 5 | Tillage Tractor 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area to till (acre) | | | | | | |
| Choose soil condition from drop down menu | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil | Firm untilled soil |
| Choose soil type from drop down menu | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil | Clay Soil |
| Input time available (work days) | | | | | | |
| Input depth of tillage (in) | | | | | | |

| CAPPING EQUIPMENT | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose stabilization equipment type from drop down menu | Roller | Roller | Roller | Roller | Roller | Roller |
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input area (ft2) | | | | | | |
| Input time available (work days) | | | | | | |

| MIXING EQUIPMENT | Mixer 1 | Mixer 2 | Mixer 3 | Mixer 4 | Mixer 5 | Mixer 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Choose horsepower range from drop down menu | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 | 1 to 3 |
| Input volume (yd3) | | | | | | |
| Input production rate (yd3/hr) | | | | | | |
| Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool) | | | | | | |

| INTERNAL COMBUSTION ENGINES | Engine 1 | Engine 2 | Engine 3 | Engine 4 | Engine 5 | Engine 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input fuel consumption rate (gal/hr or scf/hr) | | | | | | |
| Input operating hours (hr) | | | | | | |

| OTHER FUELED EQUIPMENT | Fuel 1 | Fuel 2 | Fuel 3 | Fuel 4 | Fuel 5 | Fuel 6 |
|---|---|---|---|---|---|---|
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input volume (scf for Natural gas, gallons for all others) | | | | | | |

| DIESEL EQUIPMENT OPERATION (PER HOUR BASIS) | Equipment 1 | Equipment 2 | Equipment 3 | Equipment 4 | Equipment 5 | Equipment 6 |
|---|---|---|---|---|---|---|
| Choose equipment type from drop down menu | Dozer | Dozer | Dozer | Dozer | Dozer | Dozer |
| Choose equipment size for Dozer (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Loader (HP) | 65 | 65 | 65 | 65 | 65 | 65 |
| Choose equipment size for Excavator (HP) | 150 | 150 | 150 | 150 | 150 | 150 |
| Choose equipment size for Scraper (HP) | 330 | 330 | 330 | 330 | 330 | 330 |
| Choose equipment size for Crawler Crane | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 | awler Crane, 25 ton, 1 |
| Choose equipment size for Tillage Tractor (HP) | 16 | 16 | 16 | 16 | 16 | 16 |
| Choose equipment size for Paver (HP) | 25 | 25 | 25 | 25 | 25 | 25 |
| Choose equipment size for Roller (HP) | 6 | 6 | 6 | 6 | 6 | 6 |
| Choose equipment size for Trencher (HP range) | 6 to 11 | 7 to 11 | 8 to 11 | 9 to 11 | 10 to 11 | 11 to 11 |
| Choose fuel type from drop down menu | Diesel | Diesel | Diesel | Diesel | Diesel | Diesel |
| Input operating hours (hr) | | | | | | |
| Will DIESEL-run equipment be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |

| OPERATOR LABOR | Occupation 1 | Occupation 2 | Occupation 3 | Occupation 4 | Occupation 5 | Occupation 6 |
|---|---|---|---|---|---|---|
| Choose occupation from drop-down menu | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers | Construction laborers |
| Input total time worked onsite (hours) | | | | | | |

| LABORATORY ANALYSIS | PFAS: Years 1-5 | VOCs: Years 6-30 | PFAS: Yeas 6-30 | VOCs: Years 6-30 | MNA: Years 1-5 | MNA: Years 6-30 |
|---|---|---|---|---|---|---|
| Input dollars spent on laboratory analysis ($) | 31,500.00 | 5,950.00 | 78,750.00 | 14,875.00 | 7,000.00 | 35,000.00 |

| OTHER KNOWN ONSITE ACTIVITIES | Entire Site |
|---|---|
| Input energy usage (MMBTU) | |
| Water consumption (gallon) | |
| Input CO2 emission (metric ton) | |
| Input N2O emission (metric ton CO2 e) | |
| Input CH4 emission (metric ton CO2 e) | |
| Input NOx emission (metric ton) | |
| Input SOx emission (metric ton) | |
| Input PM10 emission (metric ton) | |
| Input fatality risk | |
| Input injury risk | |

**RESIDUAL HANDLING**

| RESIDUE DISPOSAL/RECYCLING | Soil Residue | Residual Water | Material Residue | Other Residuals | Other Residuals | Other Residuals |
|---|---|---|---|---|---|---|
| Will DIESEL-run vehicles be retrofitted with a particulate reduction technology? | No | No | No | No | No | No |
| Input weight of the waste transported to landfill or recycling per trip (tons) | | | | | | |
| Choose fuel used from drop down menu | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline | Gasoline |
| Input total number of trips | | | | | | |
| Input number of miles per trip | | | | | | |

| LANDFILL OPERATIONS | Operation 1 | Operation 2 | Operation 3 | Operation 4 | Operation 5 | Operation 6 |
|---|---|---|---|---|---|---|
| Choose landfill type for waste disposal | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous | Non-Hazardous |
| Input amount of waste disposed in landfill (tons) | | | | | | |
| Input landfill methane emissions (metric tons CH4) | | | | | | |
| Region | | | | | | |
| Electricity Region | NY | NY | NY | NY | NY | NY |

| THERMAL/CATALYTIC OXIDIZERS* | Oxidizer 1 | Oxidizer 2 | Oxidizer 3 | Oxidizer 4 | Oxidizer 5 | Oxidizer 6 |
|---|---|---|---|---|---|---|
| Choose oxidizer type from drop down menu | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer | Simple Thermal Oxidizer |
| Choose fuel type from drop down menu | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas | Natural gas |
| Input waste gas flow rate (scfm) | | | | | | |
| Input time running (hours) | | | | | | |
| Input waste gas inlet temperature (F) | | | | | | |
| Input contaminant concentration (ppmV) | | | | | | |

*(Electric blowers are included in the analysis)

**RESOURCE CONSUMPTION**

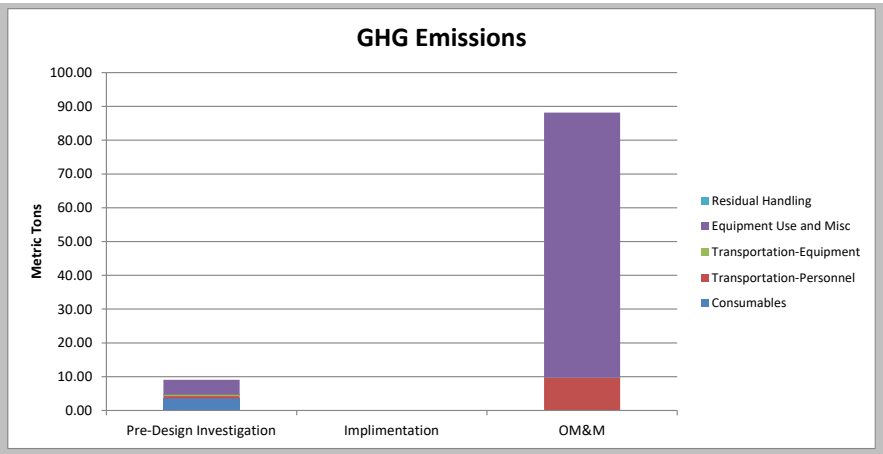
| WATER CONSUMPTION | Treatment System 1 | Treatment System 2 | Treatment System 3 | Treatment System 4 | Treatment System 5 | Treatment System 6 |
|---|---|---|---|---|---|---|
| Input total water consumed from potable water treatment facility (gal) | | | | | | |
| Input total water disposed to wastewater treatment facility (gal) | | | | | | |

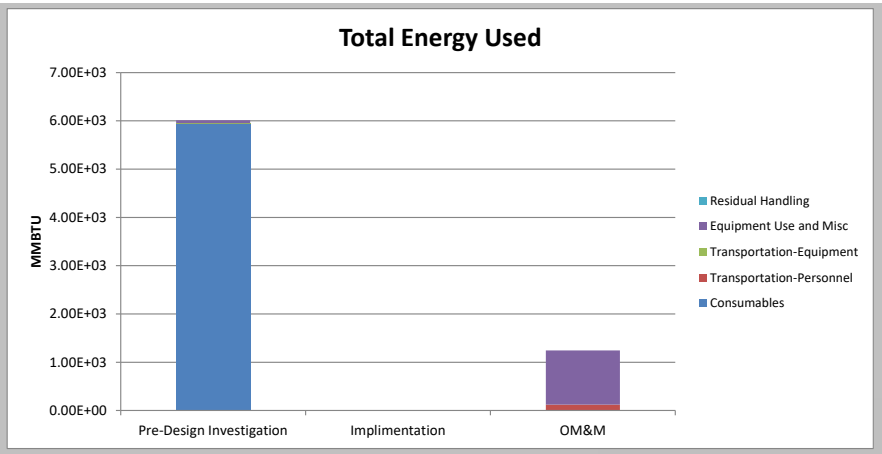
| ONSITE LAND AND WATER RESOURCE CONSUMPTION | Entire Site 1 | Entire Site 2 | Entire Site 3 | Entire Site 4 | Entire Site 5 | Entire Site 6 |
|---|---|---|---|---|---|---|
| Input volume of topsoil brought to site (cubic yards) | | | | | | |
| Input volume of groundwater or surface water lost (gal) | | | | | | |

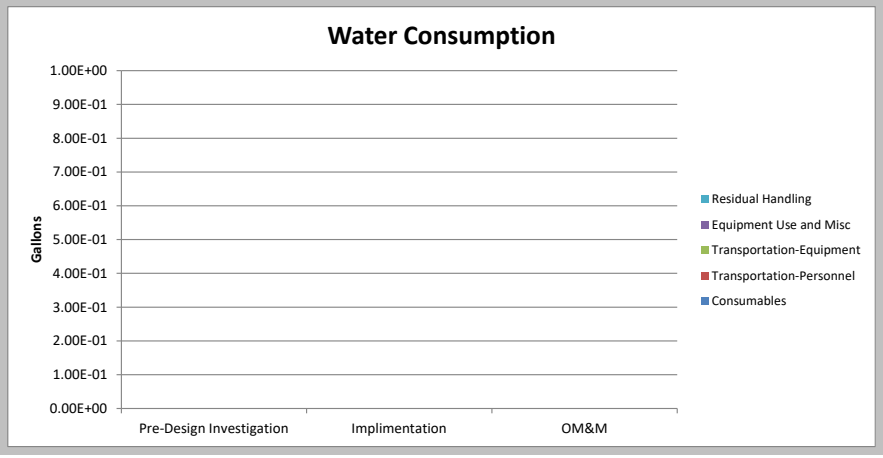
## Sustainable Remediation - Environmental Footprint Summary
## 6

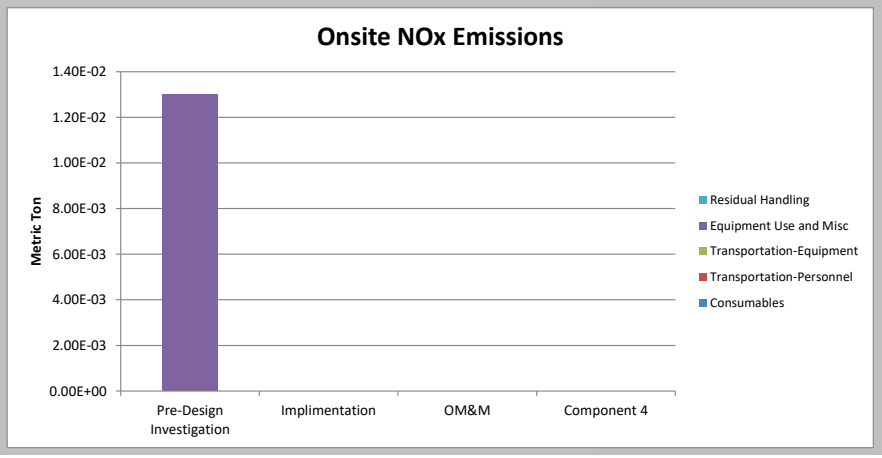
| Phase | Activities | GHG Emissions | Total Energy Used | Water Consumption | Electricity Usage | Onsite NOx Emissions | Onsite SOx Emissions | Onsite PM10 Emissions | Total NOx Emissions | Total SOx Emissions | Total PM10 Emissions | Accident Risk Fatality | Accident Risk Injury |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | metric ton | MMBTU | gallons | MWH | metric ton | metric ton | metric ton | metric ton | metric ton | metric ton | | |
| Pre-Design Investigation | Consumables | 3.58 | 5.9E+03 | NA | NA | NA | NA | NA | 7.2E-03 | 1.0E-02 | 1.3E-03 | NA | NA |
| | Transportation-Personnel | 0.67 | 8.5E+00 | NA | NA | NA | NA | NA | 2.2E-04 | 8.8E-06 | 4.1E-05 | 1.1E-05 | 8.9E-04 |
| | Transportation-Equipment | 0.40 | 5.2E+00 | NA | NA | NA | NA | NA | 1.2E-04 | 2.2E-06 | 1.1E-05 | 2.1E-06 | 1.7E-04 |
| | Equipment Use and Misc | 4.42 | 6.0E+01 | 0.0E+00 | 0.0E+00 | 1.3E-02 | 1.3E-03 | 1.2E-03 | 2.8E-02 | 1.3E-02 | 2.5E-03 | 1.5E-06 | 3.7E-04 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 9.07 | 6.01E+03 | 0.00E+00 | 0.00E+00 | 1.30E-02 | 1.33E-03 | 1.17E-03 | 3.59E-02 | 2.27E-02 | 3.90E-03 | 1.46E-05 | 1.42E-03 |
| Implimentation | Consumables | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | NA | NA |
| | Transportation-Personnel | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Transportation-Equipment | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Equipment Use and Misc | 0.00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 0.00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| OM&M | Consumables | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | NA | NA |
| | Transportation-Personnel | 9.65 | 1.2E+02 | NA | NA | NA | NA | NA | 3.0E-03 | 1.3E-04 | 6.0E-04 | 1.6E-04 | 1.3E-02 |
| | Transportation-Equipment | 0.00 | 0.0E+00 | NA | NA | NA | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Equipment Use and Misc | 78.51 | 1.1E+03 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 3.8E-01 | 2.8E-01 | 3.1E-02 | 0.0E+00 | 0.0E+00 |
| | Residual Handling | 0.00 | 0.0E+00 | NA | NA | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| | Sub-Total | 88.16 | 1.24E+03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.80E-01 | 2.83E-01 | 3.20E-02 | 1.64E-04 | 1.32E-02 |
| **Total** | | **9.7E+01** | **7.3E+03** | **0.0E+00** | **0.0E+00** | **1.3E-02** | **1.3E-03** | **1.2E-03** | **4.2E-01** | **3.1E-01** | **3.6E-02** | **1.8E-04** | **1.5E-02** |

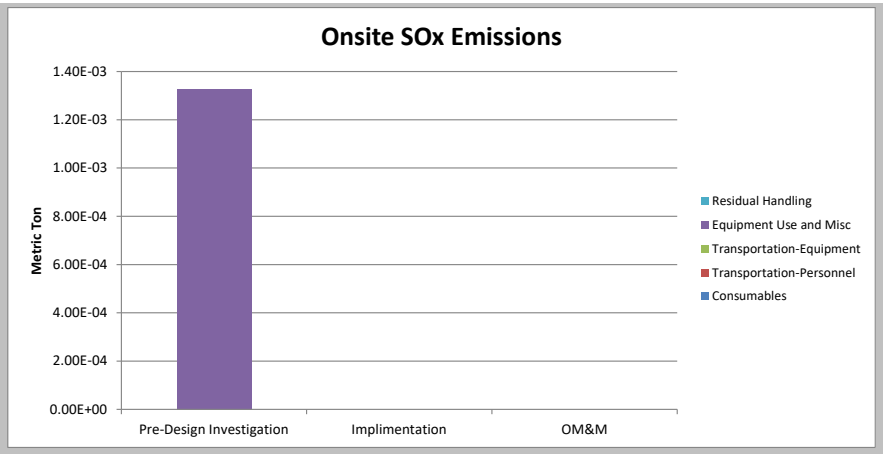
| Remedial Alternative Phase | Non-Hazardous Waste Landfill Space | Hazardous Waste Landfill Space | Topsoil Consumption | Costing | Lost Hours - Injury | Percent electricity from renewable sources | Total Cost with Footprint Reduction |
|---|---|---|---|---|---|---|---|
| | tons | tons | cubic yards | $ | | % | |
| Pre-Design Investigation | 0.0E+00 | 0.0E+00 | 0.0E+00 | 22,832 | 1.1E-02 | 0.0% | $123,867 |
| Implimentation | 0.0E+00 | 0.0E+00 | 0.0E+00 | 25,000 | 0.0E+00 | 0.0% | |
| OM&M | 0.0E+00 | 0.0E+00 | 0.0E+00 | 76,035 | 1.1E-01 | 0.0% | |
| **Total** | **0.0E+00** | **0.0E+00** | **0.0E+00** | **$123,867** | **1.2E-01** | **0.0%** | |

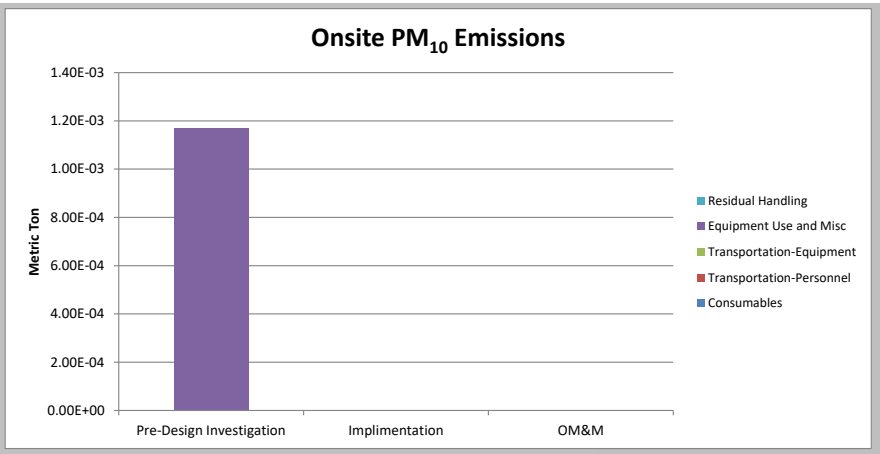

GHG Emissions
Metric Tons
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

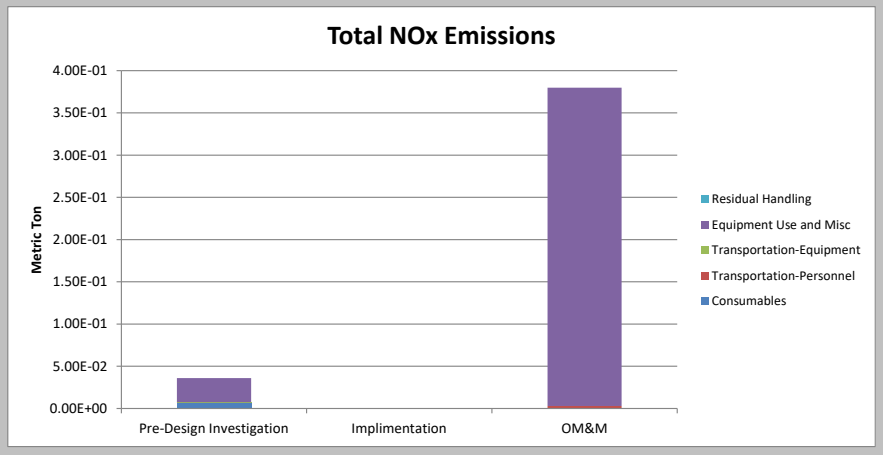

Total Energy Used
MMBTU
7.00E+03
6.00E+03
5.00E+03
4.00E+03
3.00E+03
2.00E+03
1.00E+03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

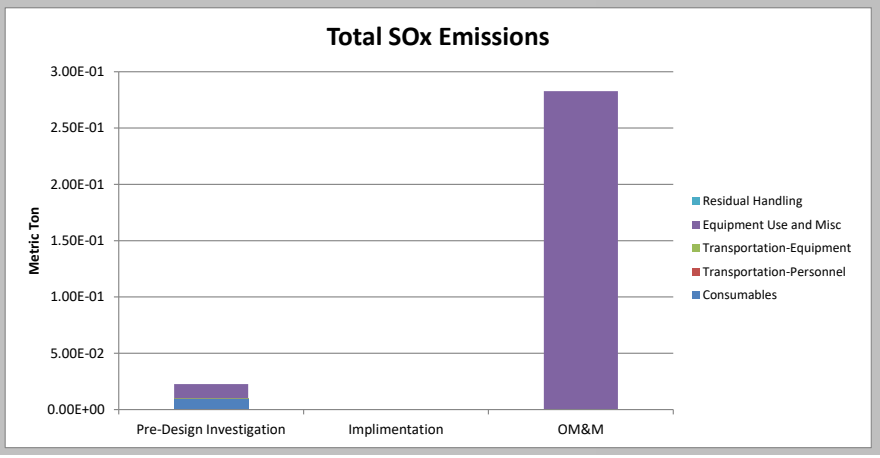

Water Consumption
Gallons
1.00E+00
9.00E-01
8.00E-01
7.00E-01
6.00E-01
5.00E-01
4.00E-01
3.00E-01
2.00E-01
1.00E-01
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

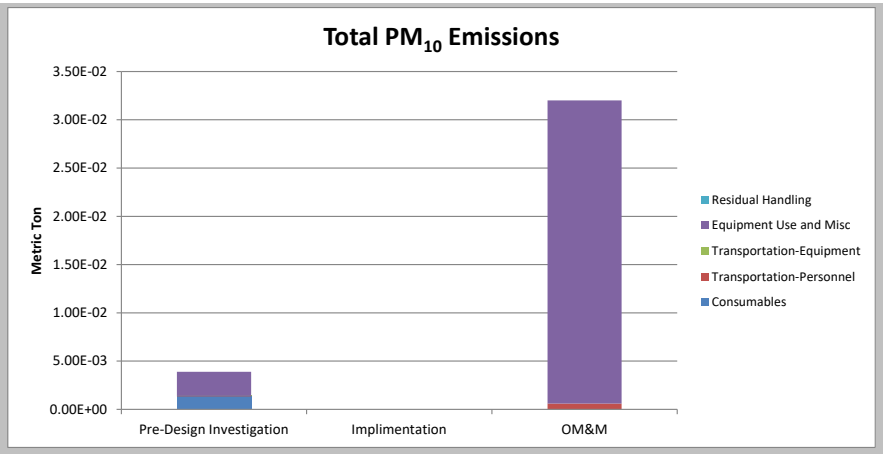

Onsite NOx Emissions
Metric Ton
1.40E-02
1.20E-02
1.00E-02
8.00E-03
6.00E-03
4.00E-03
2.00E-03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

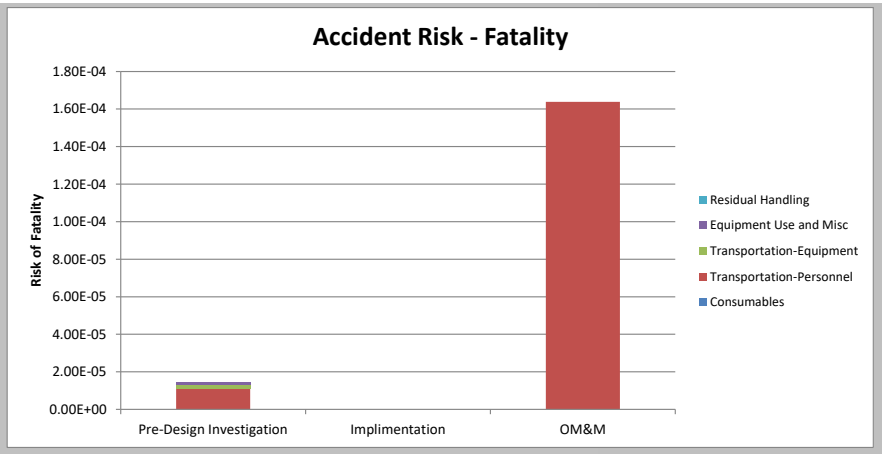

Onsite SOx Emissions
Metric Ton
1.40E-03
1.20E-03
1.00E-03
8.00E-04
6.00E-04
4.00E-04
2.00E-04
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

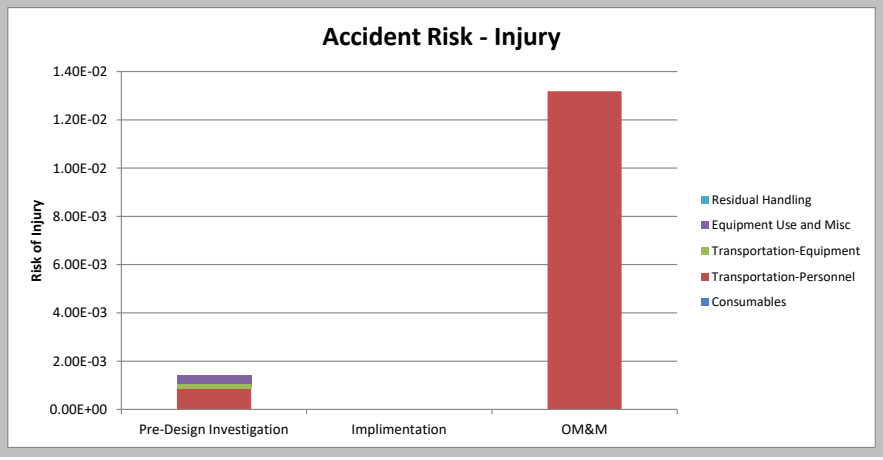

Onsite PM10 Emissions
Metric Ton
1.40E-03
1.20E-03
1.00E-03
8.00E-04
6.00E-04
4.00E-04
2.00E-04
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

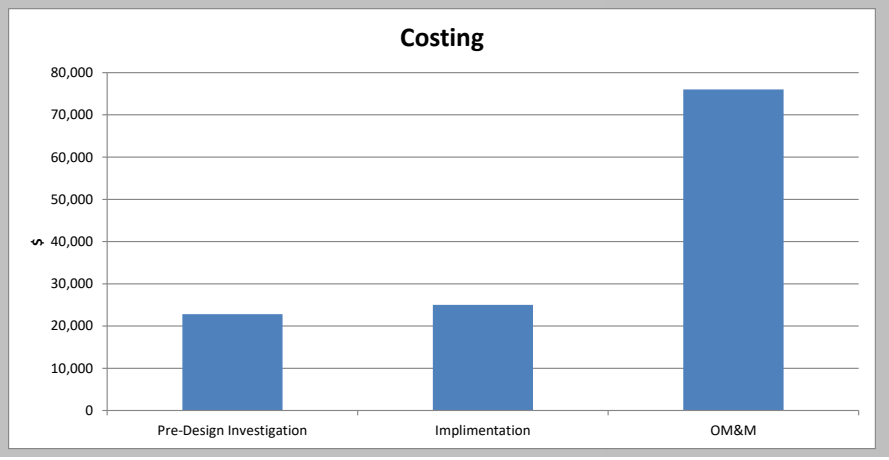

Total NOx Emissions
Metric Ton
4.00E-01
3.50E-01
3.00E-01
2.50E-01
2.00E-01
1.50E-01
1.00E-01
5.00E-02
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

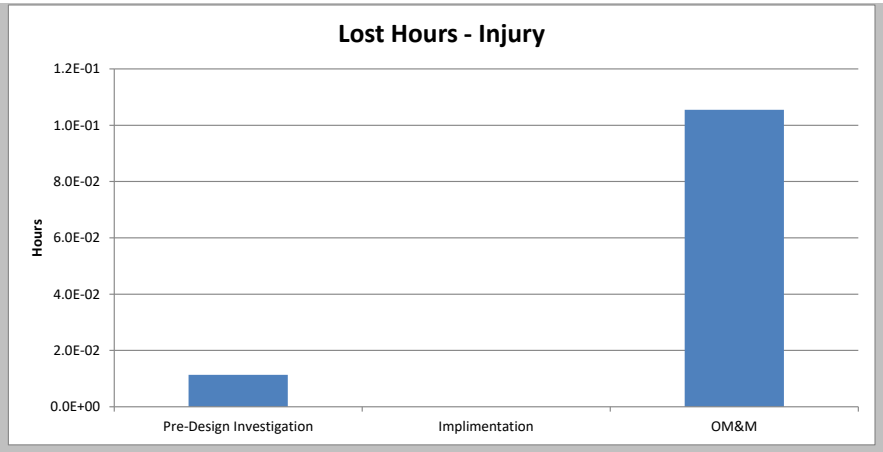

Total SOx Emissions
Metric Ton
3.00E-01
2.50E-01
2.00E-01
1.50E-01
1.00E-01
5.00E-02
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Total PM10 Emissions
Metric Ton
3.50E-02
3.00E-02
2.50E-02
2.00E-02
1.50E-02
1.00E-02
5.00E-03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Accident Risk - Fatality
Risk of Fatality
1.80E-04
1.60E-04
1.40E-04
1.20E-04
1.00E-04
8.00E-05
6.00E-05
4.00E-05
2.00E-05
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Accident Risk - Injury
Risk of Injury
1.40E-02
1.20E-02
1.00E-02
8.00E-03
6.00E-03
4.00E-03
2.00E-03
0.00E+00
Pre-Design Investigation
Implimentation
OM&M
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Costing
$
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Pre-Design Investigation
Implimentation
OM&M


Lost Hours - Injury
1.2E-01
1.0E-01
8.0E-02
6.0E-02
4.0E-02
2.0E-02
0.0E+00
Hours
Pre-Design Investigation
Implimentation
OM&M