
EMULSIFIED ZERO-VALENT IRON REMEDIAL DESIGN

for

23-30 BORDEN AVENUE DEVELOPMENT
Queens, New York
NYSDEC BCP Site No. C241238

Prepared For:

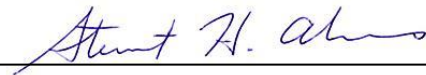
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1.0 BACKGROUND

Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. (Langan) has prepared this Emulsified Zero-Valent (EZVI) Iron Remedial Design for the 23-30 Borden Avenue Development Site located to the south of the intersection of Borden Avenue and 23rd Street (Block 68, Lot 38) in the Long Island City neighborhood of Queens, New York (the “Site”) (see **Figure 1**). The Site is enrolled in the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) and is identified in the BCP as Site No. C241238. The Site is an approximately 203,325-square-foot parcel that was formerly occupied by a 181,675-square-foot two-story warehouse and is currently undergoing redevelopment through the BCP. The Site is bound to the north by Borden Avenue, followed by a series of one- and two-story industrial and manufacturing properties, to the east by a one-story industrial/manufacturing property, to the south by rail lines and a switchyard associated with the Montauk Line of the Long Island Rail Road (LIRR), and to the west by a two-story industrial/manufacturing building. The Long Island Expressway/Queens Midtown Expressway and the Newtown Creek are in proximity to the north and to the south of the Site, respectively.

The following environmental assessment and investigation reports have been prepared for the Site by Langan.

- *Phase I Environmental Site Assessment* prepared by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C., 10 January 2019;
- *Phase II Environmental Investigation Report* prepared by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C., 12 April 2019;
- *Remedial Investigation Work Plan* prepared by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C., 3 July 2019 revised 3 February 2020;
- *Interim Remedial Measures Work Plan* prepared by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C., 19 December 2019 revised 3 April 2020;
- *Supplemental Soil and Groundwater Investigation Work Plan* prepared by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C., 15 March 2021 revised 19 March 2021;

- *Remedial Investigation Report* prepared by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C., 5 August 2021.
- *Remedial Action Work Plan* prepared by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C., 29 October 2021. (2021 RAWP)

According to Langan's review and preparation of previous environmental assessments and investigation reports prepared for the Site, and the results of the Remedial Investigation, features and environmental concerns on the subject property include historical manufactured gas plant (MGP) operations and the presence of coal gas structures, petroleum impacts associated with NYSDEC Spill No. 1812799, chlorinated volatile organic compound (CVOC) impacts in soil vapor potentially attributed to an off-Site source, historical rail yard use, and the presence of historic fill material. The site plan and four areas of concern (AOCs) discussed in detail in the 2021 RAWP, are shown on **Figure 2**.

The site stratigraphy consists of a historic fill layer up to 16.5 feet thick underlain by a clay layer, with a sand stratum identified between fill and clay in some locations. Groundwater was encountered at depths ranging from el 4.5 to 1.89 NAVD88. The gradient at the Site is generally flat and localized groundwater flow is to the north-northwest. Subsurface profiles are provided in **Figures 3A** and **3B**. CVOCs, including the contaminants of concern 1,1,1-trichloroethane (1,1,1-TCA) and vinyl chloride, were detected in groundwater samples collected at concentrations exceeding the NYSDEC Ambient Water Quality Standards and Guidance Values (SGVs) in the southern portion of the Site. Based on the results of the Remedial Investigation completed onsite, groundwater concentrations of vinyl chloride were detected in exceedance of the NYSDEC SGV of 2 micrograms per liter ($\mu\text{g/L}$) throughout an approximately 2,500 square foot (sf) area between approximately 8 and 13 feet below ground surface (ft. bgs). The highest concentration of vinyl chloride detected in this area was 524 $\mu\text{g/L}$ at LMW-26. Additionally, groundwater concentrations of 1,1,1-TCA and 1,1,2 TCA were detected in exceedance of their respective NYSDEC SGVs of 5 $\mu\text{g/L}$ and 1 $\mu\text{g/L}$, respectively, throughout an approximately 6,500 square foot (sf) area between approximately 8 and 13 feet below ground surface (ft. bgs). The highest concentration of 1,1,1-TCA and 1,1,2 TCA detected in this area were 82.7 $\mu\text{g/L}$ and 3.06 $\mu\text{g/L}$, respectively, at LMW-14. The groundwater analytical results and CVOC plume extents are shown on **Figure 4**. The presence of on-Site 1,1,1-TCA impacts is the result of historical Site use or may potentially be attributed to an unknown off-Site source located to the south of the Site. The presence of vinyl chloride in the southwestern portion of the Site is attributed to historical Site use, which included the generation of tetrachloroethene (PCE) as hazardous waste, as this compound is indicative of PCE degradation. Based on the results of the Remedial

Investigation, vinyl chloride impacts in groundwater have been delineated and are not migrating off-Site. 1,1,1-TCA impacts have been delineated to the southern property boundary, and may either be migrating off-site or potentially migrating onto the site from an unknown source to the south.

The soil analytical results indicate that there were no CVOC exceedances of the NYSDEC Soil Cleanup Objectives (SCOs) detected at borings taken within the CVOC plume extents. The soil analytical results are shown on **Figure 5**.

The proposed future use of the Site will consist of an industrial building, the construction of which has already initiated. Current redevelopment plans consist of a six-story building with no cellar located on the northern side of the Site and an approximately 77,300 square-foot ground-level warehouse with loading docks, structured parking landing and storage. The building will include warehouse space with loading docks on the first through third floors and multipurpose light industrial spaces, production studio space, and maker space on the fourth and fifth floors; the sixth floor will consist of rooftop parking.

The October 2021 RAWP detailed the remedial action of EZVI injections to address the vinyl chloride and 1,1,1-TCA plumes. The goal of the injections is to achieve a reduction in groundwater concentrations of vinyl chloride and 1,1,1-TCA to promote monitored natural attenuation (MNA) and prevent off-site migration of on-Site impacted groundwater.

In the 20 October 2021 NYSDEC comment letter on the RAWP, the NYSDEC requested that a bench-scale treatability study be performed to demonstrate that the selected technology is sufficient to treat the groundwater contamination effectively. The NYSDEC also requested that a complete design, including reagent quantities, dosage, and injection intervals be submitted prior to the remedial implementation. To address these comments, a treatability study was conducted between November 2021 and January 2022. Included herein is a discussion of the treatability study completed and the results of said study, as well as a final proposed groundwater remedy based on the treatability study results.

2.0 EMULSIFIED ZERO VALENT IRON REMEDIAL DESIGN

The emulsified zero valent iron (EZVI) remedial design is based on the treatability study results and recommendations described herein. EZVI, a variation of enhanced zero valent iron, is a combination of zero valent iron particles, coupled with emulsified vegetable oil (EVO) invented by the National Aeronautics and Space Administration (NASA) as an effective method of combining

two mechanisms (abiotic reductive dechlorination due to ZVI and biological reductive dechlorination) for degrading chlorinated solvents present as residual organic liquid.

2.1 Treatability Study

A bench-scale treatability study was conducted by Langan between November 2021 and January 2022 at the New Jersey Institute of Technology (Langan Treatability Facility) to demonstrate the effectiveness of emulsified zero valent iron on the degradation of 1,1,1-TCA and vinyl chloride in groundwater. The test consisted of a six week study completed to demonstrate efficacy of the proposed injection technology on the site-specific contaminants, as evidenced by a reduction in contaminant groundwater concentrations.

Field Sampling

Five liters of groundwater were collected from LMW-31 within the 1,1,1-TCA plume, and five liters of groundwater were collected from LMW-26 within the vinyl chloride plume for treatability testing. Groundwater samples were also collected directly from each well for analysis of VOCs by York Analytical Laboratories (York). The groundwater was collected in accordance with the United States Environmental Protection Agency's (USEPA) low-flow groundwater sampling procedure to allow for collection of representative samples. Prior to sample collection, groundwater was purged from each well while monitoring physical and chemical groundwater parameters (i.e., pH, conductivity, turbidity, dissolved oxygen, temperature, and oxidation-reduction potential). Groundwater was purged until physical and chemical groundwater parameters stabilized or after the well was purged for one hour, whichever was sooner. Groundwater samples were collected with a peristaltic pump with dedicated polyethylene tubing. Low flow sampling sheets are provided in **Appendix A**.

Groundwater VOC samples were collected into labeled, laboratory-supplied containers, placed in a laboratory-supplied cooler, and packed on ice. The samples were picked up and delivered via courier service to York under standard chain-of-custody protocol. Groundwater samples for the treatability study were collected in 5-liter bags (Labtainer™) filled without headspace. The groundwater bags were placed in a Langan-supplied cooler with ice and delivered to the Langan Treatability Facility.

Laboratory Testing Setup

One control and one treatment dosage were set up for each area of concern in glass jars equipped with caps to prevent air infiltration. A total of 4 jars were set up on 22 November 2021. The 1,1,1-TCA jars were filled with groundwater from LMW-31, and were spiked with 1,1,1-TCA (500 micrograms per liter ($\mu\text{g/L}$)) in addition to 1,1,1-TCA present in the field samples. The vinyl chloride jars were filled with groundwater from LMW-26, and were spiked with vinyl chloride (500 $\mu\text{g/L}$) in addition to vinyl chloride present in the field samples.

The “Killed” control jars were treated with a sodium azide (a common biocide), while the treatment jars were amended with emulsified vegetable oil (EVO), zero valent iron (ZVI), SDC-9™ (bioaugmentation culture)¹, and NutriPlus™ (nutrients)².

The jars were incubated at room temperature and set on mixing plates at a low mixing (50-100 revolutions per minute) for six weeks. Baseline groundwater samples were collected from each jar for VOC analysis within one hour of setup. Subsequent groundwater samples were collected from each jar for VOC analysis one week, two weeks, and six weeks after setup to monitor for 1,1,1-TCA and vinyl chloride degradation. In addition, sulfate and nitrate levels were measured in the field groundwater samples. The pH and oxidation reduction potential (ORP) were monitored in the treatment and control jars. Based on the analytical results of samples collected during the first three progress sampling events, additional dosage of EVO and ZVI reagents was added to both treatment jars on 20 December 2021 (approximately four weeks after setup) to improve the kinetics of both abiotic and biotic degradation. The safety data sheets for all reagents used in the laboratory study are provided in **Appendix B**. The original and updated dosages for each jar is provided in **Appendix C**.

Results

Field Samples

Groundwater quality data (**Appendix A**) collected during field sampling shows that the pH in both wells are between 6.6 and 6.9 standard units (S.U.). The ORP in LMW-31 was +176 millivolts (mV), while the ORP in LMW-26 was -45 mV. Dissolved oxygen was not detected in either well.

¹ Produced by Aptim, Inc., Lawrenceville, NJ

² Produced by TerraSystems, Inc., Wilmington, DE

Analytical results of groundwater samples collected from LMW-31 and LMW-26 for VOC analysis on 16 November 2021 are presented in **Table 1** and **Appendix C**. The 1,1,1,-TCA concentration in LMW-31 was 16.4 µg/L, and vinyl chloride and cis-1,2-DCE concentrations at LMW-26 were 477 and 323 µg/L, respectively. Benzene was also detected in LMW-26 at 5.6 µg/L, marginally above the NYSDEC SGV. These data were consistent with previously collected groundwater data of March and April 2021, as presented on Figure 4.

Treatability Test Data

Vinyl Chloride Treatment Test

Sulfate levels were 195 milligrams per liter (mg/L), and nitrate was not detected in the LMW-26 groundwater sample. This indicates that sulfate can act as an electron acceptor and interfere with chlorinated solvent reductive dechlorination. The sulfate and nitrate values are provided in **Appendix C**.

Significant degradation of vinyl chloride was not observed in the treatment jars during the first two weeks of the study. The vinyl chloride concentration decreased from 542 µg/L measured during the first sampling event to 430 µg/L at Week 2. Additionally, significant changes in the concentration of cis-1,2-dichloroethane (cis-1,2-DCE), the parent compound of vinyl chloride, was not observed during the first two weeks of the study. The cis-1,2-DCE concentration decreased from 247 µg/L (at setup) to 223 µg/L (Week 2). After the additional EZVI reagents were added to the jars in Week 4, the final sampling point (Week 6) showed that the vinyl chloride and cis-1,2-DCE concentrations had further decreased to 261 and 155 µg/L, respectively in the treatment jar. Analytical data collected from the treatability test is provided in **Table 2** and **Appendix C**.

The groundwater in the treatment jar turned black in color by Week 2 (see photo log provided in **Appendix C**), this is typically due to the presence of iron sulfides, indicating that reducing conditions were established in the treatment jars, but not in the control jars. The ORP measured in Week 7 also indicated that reducing conditions were observed in the treatment jar [-104 millivolts (mV)] as compared to the control jars (+192 mV). Additionally, the decrease in pH in the treatment jar (6.25) compared to the control jar (7.04) is indicative of microbial activity in the treatment jar – acid is generated from the microorganisms breaking down the EVO. The pH and ORP data is provided in **Appendix C**.

The final results indicate a 61% reduction in vinyl chloride moles, when comparing the results from Week 0 to Week 6 in the treatment jar. Note that a 33% reduction in vinyl chloride moles was observed in the control jar over the course of the test. Additionally, a 49% reduction and 12% reduction in cis-1,2-DCE moles was observed in the treatment jar and control jar, respectively, over the course of the test.

1,1,1-TCA Treatment Test

Sulfate levels were 62 mg/L, and nitrate was detected at 0.8 mg/L in the LMW-31 groundwater sample. This indicates that sulfate and nitrate can act as electron acceptors and interfere with chlorinated solvent reductive dechlorination. The sulfate and nitrate values are provided in **Appendix C**.

Significant degradation of 1,1,1-TCA was not observed in the treatment jar during the first two weeks. The 1,1,1-TCA concentration did not decrease from 143 µg/L measured during the first sampling event during the first two weeks. The Week 2 results indicated that 1,1,1-TCA was partially converted to 1,1-Dichloroethane (1,1-DCA) in the treatment jar. Methylene chloride was detected in the analytical samples – this is likely a result of cross contamination in the laboratory (methylene chloride is routinely used as solvent in the laboratories). The 2-butanone detected in the treatment jars is likely a product of incomplete oxidation of organic compounds. After the additional EZVI reagents were added to the jars in Week 4, the final sampling point (Week 6) showed that the 1,1,1-TCA concentration had decreased to a non-detect level in the treatment jar. Analytical data collected from the treatability test is provided in **Table 2** and **Appendix C**.

The groundwater in the treatment jar turned black in color by Week 2 (see photo log provided in **Appendix C**), this is typically due to the presence of iron sulfides, indicating that reducing conditions were established in the treatment jars, but not in the control jars. The ORP measured in Week 7 also indicated that reducing conditions were observed in the treatment jar (-264 mV) as compared to the control jars (+199 mV). Additionally, the decrease in pH in the treatment jar (5.8) compared to the control jar (7.28) is indicative of microbial activity in the treatment jar – acid is generated from the microorganisms breaking down the EVO. The pH in the treatment jar is within the favorable range of 5 to 8. The pH and ORP data is provided in **Appendix C**.

The results indicate a 99% reduction in 1,1,1-TCA moles, when comparing the results from Week 0 to Week 6 in the treatment jar. Note that a 39% reduction in 1,1,1-TCA moles was observed in the control jar over the course of the test.

A combination of EVO and ZVI is widely used to treat groundwater plumes of CVOCs. The laboratory testing data showed that application of EVO and ZVI can generate anaerobic conditions necessary for biotic and abiotic degradation of chlorinated solvents. Further the analytical data from the treatability study showed that EZVI is effective in reducing concentrations of 1,1,1-TCA and vinyl chloride. Based on the treatability study observations, a higher than expected dosage of EVO and ZVI reagents are required.

2.2 Remedial Approach

As described in the NYSDEC-approved RAWP, the remedial objective for the EZVI remedy is to achieve reduction in groundwater concentrations of chlorinated solvents, (vinyl chloride, 1,1,1-TCA, and 1,1,2-TCA), such that natural attenuation is supported. An EZVI injection will be performed to both chemically reduce, as well as anaerobically degrade the VOCs. The use of EZVI injections are designed to further promote monitored natural attenuation (MNA) and mitigate potential for offsite migration of on-Site VOC impacted groundwater. The EZVI reagents will be delivered into the subsurface using temporary injection points established using direct push technology (DPT). The EZVI reagents application will be performed within the 1,1,1-TCA and vinyl chloride plumes.

2.3 Treatment Zones

Treatment zones for the application of EZVI were determined based on the soil and groundwater concentrations of the CVOCs detected at the Site, as described in Section 1.0. The extents of the vinyl chloride and 1,1,1-TCA plumes are based on observed exceedances of vinyl chloride and 1,1,1-TCA NYSDEC SGVs in groundwater, respectively. The proposed EZVI treatment zones are shown on **Figure 6** and are defined as below:

- Vinyl Chloride Treatment Zone is approximately 2,500 square feet and 5 feet thick (from 8 to 13 feet bgs)
- 1,1,1-TCA Treatment Zone is approximately 6,500 square feet and 5 feet thick (from 8 to 13 feet bgs).

2.4 Injection Reagents and Dosages

To implement the remedy, an injection solution consisting of EVO, ZVI, nutrients (yeast extract, and diammonium phosphate (DAP)), and bioaugmentation culture SDC-9™ will be injected into both Treatment Zones. The reagent demand and injection volumes for the EZVI application are

based on the results of the treatability study and are summarized in **Table 3**. A higher than expected reagent dosage of EVO [3.75 grams per kilogram (g/kg) and 9.00 g/kg for the Vinyl Chloride and 1,1,1-TCA Treatment Zones, respectively] and ZVI (2.50 g/kg and 6.00 g/kg for the Vinyl Chloride and 1,1,1-TCA Treatment Zones, respectively), than initially contemplated, will be applied to increase the kinetics of biotic and abiotic degradation.

3.0 EMULSIFIED ZERO VALENT IRON INJECTION IMPLEMENTATION

The following tasks will be completed as a part of EZVI injection implementation:

- Health and Safety Requirements
- Monitoring Well Installation;
- Baseline Groundwater Monitoring Event;
- Permit and Notifications;
- Mobilization;
- Injection Event;
- Community Air Monitoring; and
- Post-Injection Groundwater Monitoring Events.

3.1 Health and Safety Requirements

A site-specific construction health and safety plan (CHASP) was developed as part of the NYSDEC-approved RAWP, dated October 2021, and will be enforced to protect on-Site workers during the implementation of the emulsified zero valent iron remedy. This CHASP has been revised to include reagent and chemical substance handling and storage guidelines, first aid and spill control measures, and exposure limits for all additives to be used in the field and is included herein as **Appendix D**. Personal protective equipment (PPE) to be used while handling of reagents will include full-face respirators, as applicable, chemical resistant coveralls and booties, nitrite gloves, steel toed shoes, and hard hat. A job safety analysis will be prepared before all field activities.

Appropriate storage, handling, and spill cleanup guidelines will be followed to minimize the potential for accidental release and exposure to injection reagents. The injection area and surroundings will be continuously monitored for surfacing and leaks during the injection process. In an event of surfacing or leak, the injections will be immediately stopped and the leaked or

surfaced materials will be removed and contained in drums. At the end of each work day, once application of injection pressure is ceased, injection area and surroundings will be monitored for additional half hour to identify any potential surfacing or leaks. During this time the pressure at the injection points is expected to subside to ambient conditions, reducing potential for surfacing.

All injection reagents will be stored on-Site within a secured area with secondary containment and appropriate labeling and warning signs.

3.2 Monitoring Well Installation

Five permanent groundwater monitoring wells will be installed throughout and around the proposed vinyl chloride treatment zone and twelve permanent groundwater monitoring wells will be installed throughout and around the proposed 1,1,1-TCA treatment area, as shown on **Figure 6**. These wells will be installed using a direct-push Geoprobe drill rig and will be constructed of 2-inch SCH40 polyvinyl chloride (PVC) solid riser pipe and 20-slot screen, screened from between approximately 8 and 13 ft. bgs. The wells will be finished to grade and will be developed (purged at least three well volumes) until groundwater is clear. A Langan field engineer will screen the soil cores with a photoionization detector (PID) and will classify the soil type, grain size and soil texture observed during well construction. Drill cuttings and purge water generated during well installation will be collected in 55-gallons drums. The waste drums will be staged pending characterization and off-Site disposal at the Site after the well installation activities are completed.

3.3 Baseline Groundwater Monitoring

Groundwater samples will be collected to establish baseline conditions within and around the treatment zones as part of the injection performance monitoring program, described in Section 3.8. Baseline groundwater monitoring samples will be collected from each newly installed well (**Figure 6**). Groundwater samples will be collected using low-flow method and will be analyzed for VOCs, iron (total and dissolved), manganese, nitrate, nitrite, sulfate, sulfide, chloride, dissolved gases (methane, ethene, ethane), total organic carbon (TOC), total dissolved solids (TDS), alkalinity, *Dehalococcoides* (DHC) and total bacteria (EBAC). The analytical monitoring plan is provided in **Table 4**. Depth to water measurements and groundwater quality parameters (pH, temperature, oxidation reduction potential (ORP), dissolved oxygen (DO), turbidity, and specific conductivity) will also be collected during the baseline groundwater sampling event. Post-injection samples will be compared to these baseline samples to evaluate

the effectiveness of the injections. Purged groundwater collected during the sampling event will be contained in 55-gallon drums and properly disposed of off-Site.

3.4 Permits and Notifications

An underground control notification letter along with Inventory of Injection Wells form (USEPA form 7520-16) and a copy of the approved Emulsified Zero Valent Iron Remedial Design will be submitted to the USEPA before field activities for injections are started.

A permit for access to the City fire hydrant will be requested from the Department of Environmental Protection. Hydrant water will be used to provide dilution water for injection activities.

3.5 Mobilization

Prior to starting the injection activities, Langan and its subcontractors will mobilize the necessary equipment and reagents to the Site. Mobilization will be completed over the course of a single week. Reagents and equipment mobilized to the Site will be staged adjacent to the treatment areas (**Figure 6**). Equipment needed for the injection includes the following: air compressor, generator, injection mixing totes, electric mixer, injection hoses, injection pumps, injection manifold, injection trailer, well head fittings, groundwater sampling/monitoring equipment, work zone and perimeter air monitoring equipment, and 55-gallon steel drums. Reagents will be delivered to the Site. The reagents will be sourced from Terra Systems, Inc. (Claymont, DE). All mixing and injection equipment will be staged within secondary containment in the treatment areas. Water for dilution of injection reagents will be sourced directly from a nearby fire hydrant or will be sourced from off-Site, if hydrant permit is not approved.

The proposed injection locations and monitoring wells are located in an open area without access restrictions. The proposed injection locations will be marked with cones and will be surveyed by a ground penetrating radar (GPR) prior to initiating DPT. Injection locations will be finalized based on field observations made during the GPR survey and previous DPT injections.

3.6 Injections

The injection event will include preparation of the injection mix and injection of the reagents at the temporary injection points.

Injection Mix: A solution of reagents in water will be prepared in small batches (about 100-200 gallons) and will be continuously mixed to avoid settling of solids. Injection reagent concentrations are provided in **Table 3**. Dilution water for injection activities will be provided from a nearby fire hydrant (or sourced from off-Site, if hydrant permit is not approved). To avoid exposure of oxygen sensitive SDC-9™ bioaugmentation culture to oxygen during preparation of injection solution, a separate injection solution with SDC-9™ will be prepared. Anaerobic water (with less than 0.5 grams per liter (g/L) of dissolved oxygen and prepared with 1.3 pounds of sodium ascorbate reductant per 1,000 gallons of water) will be used to make a dilute solution of SDC-9™ culture, and it will be injected at the DPT locations periodically between batches of ZVI, EVO and nutrient solution.

Injections: The injection mix will be applied within the treatment zones using temporary injection points that will be installed using DPT. Proposed injection locations are shown on **Figure 6**. Injections at each location will be performed using a bottom-up injection approach, using 1- to 4-foot lifts at depths ranging between 8 to 13 feet bgs. The injection reagent will be pumped from the mixing tank to the well head through an injection manifold. The injection manifold will be equipped with ball valves, gate valves, and flow totalizers to regulate and monitor the injection flow. Each injection location will be fitted with a well head that will be equipped with a pressure gauge and a threaded adaptor to connect to the injection location and Camlock fittings to connect with similarly fitted hoses. Target injection volumes for each treatment zone are provided in **Table 3**. An injection process diagram is provided as **Figure 7**. The proposed injection volume for each treatment area, as provided in Table 3, is proposed to be divided evenly amongst each of their respective injection points. It is anticipated that 16 injection points will be installed in the Vinyl Chloride treatment area and that 32 injection points will be installed in the 1,1,1-TCA treatment zone; however, the number of injection points may be altered in the field based on observations made during the injections (Section 3.8). The injection strategy is to initiate injections in the northwestern portion of the vinyl chloride treatment area (i.e., furthest from property boundary) which will create a “treatment barrier” on the northern end of the proposed treatment zone as well as allow for any potential adjustments to the injection volumes, reagent dosages and injection rate based on observations of short-circuiting and/or daylighting. The potential adjustments are discussed in further detail in Section 3.8. Upon making these adjustments, if necessary, injection points will be installed along the southern property boundary within the 1,1,1-TCA treatment zone to provide a “treatment barrier” that will prevent the flushing of untreated contaminated groundwater onto the adjacent property to the south. Injections points and the associated injection activities will then progress towards the north, first in the 1,1,1-TCA treatment area followed by the vinyl chloride treatment area.

Each temporary injection point will be flushed with 50 to 100 gallons of water (chase water) after reagents are injected, to rinse the injection hoses and push out reagents within the ground away from the injection location. The borings will be abandoned by backfilling with bentonite chips. NYSDEC will be notified at least 7 days prior to performing any in-situ treatment. The injection events for each treatment zone is estimated to be completed within one week.

3.7 Community Air Monitoring

Pursuant to the NYSDEC-approved RAWP, dated October 2021, air monitoring will be conducted for particulates (i.e., dust) and VOCs during intrusive activities. Dust and/or vapor suppression techniques will be employed to limit potential for off-Site migration of soil and vapors. The air monitoring will include continuous perimeter monitoring of dust and organic vapor utilizing DustTrak aerosol monitors and PIDs capable of recording data and calculating 15-minute averages. A field engineer, scientist, or geologist will also monitor Site perimeters for visible dust and odors.

3.8 Injection Monitoring

Injection monitoring consists of batch, field, and process monitoring. The injection monitoring plan is summarized in **Table 5**.

Batch Monitoring: During preparation of each batch of injection solution, the mixing ratios and volumes will be recorded.

Field Monitoring: Water quality parameters (pH, temperature, ORP, dissolved oxygen, turbidity, and conductivity) will be measured at each monitoring location during injection activities. A field monitoring plan is provided in **Table 5**. Field monitoring will be used to assess the radius of influence of injections. In addition, monitoring will be performed to identify leaks and surfacing of injection fluid at the injection wells heads, and within and around the treatment zone. Any injection fluid that surfaces will be contained in 55-gallon plastic drums and disposed of off-Site.

Process Monitoring: During EZVI injections, process parameters (injection pressure, flow rate, and volume) will be monitored. The process monitoring will be performed to assess the injection process.

Preparation of batches of injection solutions, the injection process parameters, and field monitoring will be recorded in field logs.

In the event that is determined, both through field and process monitoring, that the injection solution is not being distributed in the subsurface as anticipated, steps will be taken to alter the proposed dosages and injection rates based on the site-specific constraints and allow for an effective injection event. Such constraints may include tighter soils requiring higher injection pressures and a denser network of injection locations, as well as possible short-circuiting pathways and daylighting resulting from previously completed and ongoing intrusive work and shallow injection interval throughout the site, which too may require a denser network of injection locations and less dilute injection solution. The volume of reagent to be injected is based on the proposed treatment area and thickness, or treatment zone, as well as the dosage requirements determined based on the results of the treatability study. The overall objective is to introduce this volume of reagent uniformly across the treatment zone. Based on what is known about the site lithology within the treatment zone (i.e., historical fill), we have conservatively estimated an achievable radius of influence (ROI) of each injection location to be 10-feet. The proposed injection strategy has been designed such that the ROI of each injection location will intersect, to some extent, with the ROI of adjacent injection locations, to ensure the uniform distribution of the injection solution. The effective ROI will be monitored via the proposed network of monitoring wells throughout and surrounding each treatment area. Visual observations will be made (i.e., “milky” water) by collecting grab samples of groundwater via a bailer at monitoring wells nearby and within the assumed ROI of the injection locations. At times, a down-well groundwater quality probe will also be used to evaluate whether groundwater geochemistry properties, such as conductivity, dissolved oxygen, pH, and oxidation reduction potential, have been impacted in a way that would indicate influence from the nearby injection locations. Finally, depth to groundwater measurements will also be collected at these monitoring wells – given the injection of reagent, a localized increase in the groundwater table would also indicate influence. Below are two of the most likely limitations to be encountered, and potential modifications to the proposed injection strategy to mitigate the effects that they may have on the uniform distribution of the injection solution.

Tighter Subsurface Soils – In the event that the soils within the treatment zone are tighter than anticipated, as identified through lower injection flow rates and/or higher injection pressures than anticipated, the volume of reagent injected at each injection point will be reduced and the number of injection points will be increased to account for the smaller radius of influence. The modifications to volume and injection point spacing will be balanced such that the proposed volume of reagent injected as shown on **Table 3** will be maintained in accordance with the results of the treatability study. Additionally, the modified spacing and resultant modifications to the ROI will be monitored as discussed above.

Short-circuiting and/or Daylighting – Due to the shallow nature of the proposed injections, the presence of a lower confining layer (i.e., clay layer) and the soil disturbance occurring due to site construction activities, there is possibility that injection short-circuiting and/or daylighting occur. If this condition is observed, a less dilute (i.e., neat) EZVI solution will be injected – this will minimize the volume injected, which will result in a smaller ROI at each injection point. As such, the injection point spacing will be reduced to account for the reduction in the ROI. To enhance the achievable ROI (i.e., further distribute EZVI) and further promote anaerobic degradation, a subsequent round of injections will follow shortly thereafter consisting of anaerobic water and SDC-9TM. The number of injection locations required to inject the anaerobic water will likely be less than that required for the EZVI injection, as the achievable ROI will likely be larger. These injection locations will likely be central to several neat EZVI injection locations. This strategy will allow for better control of EZVI distribution and mitigate short-circuiting and/or daylighting. Actual ROIs achieved based on these modifications will be monitored as discussed above.

3.9 Post-Injection Performance Monitoring

Groundwater monitoring events will be performed three months and six months post-injection to evaluate remedial effectiveness within each treatment zone. Groundwater samples will be collected from each of the five monitoring wells in the vinyl chloride treatment area and all twelve monitoring wells in the 1,1,1-TCA treatment area (**Figure 6**) via the low-flow method and will be analyzed for VOCs, iron (total and dissolved), manganese, nitrate, nitrite, sulfate, sulfide, chloride, dissolved gases (methane, ethene, ethane), total organic carbon (TOC), total dissolved solids (TDS), alkalinity, *Dehalococcoides* (DHC) and total bacteria (EBAC). The analytical monitoring plan is provided in **Table 4**. Depth to water measurements and groundwater quality parameters (pH, temperature, ORP, DO, turbidity, and conductivity) will be collected during each groundwater monitoring event. Purged groundwater collected during the sampling event will be contained in 55-gallon drums and properly disposed of off-Site.

The need for a contingent second round of injections will be determined based on the monitoring results. The injections will be deemed effective, negating the need for a subsequent round of injections, if the reduction in 1,1,1-TCA and vinyl chloride concentrations are such that natural attenuation is supported. If a second round of injections is determined to be necessary, they will be performed, and two additional groundwater monitoring events will be performed three months and six months after the second round of injections, if applicable.

4.0 REPORTING

Following the injection event, the injection volumes, reagent dosage, injection and field monitoring data, baseline sampling results, as well as performance monitoring data will be reported to NYSDEC.

5.0 SCHEDULE

Following approval from the NYSDEC, implementation of the remediation activities proposed herein is expected to progress under the following schedule:

Task		Duration
1	Installation of new monitoring wells	2 to 3 weeks
2	Baseline groundwater sampling	5 days (performed at least 1 week after new well installation).
3	Mobilization, injections, and injection monitoring	2 to 3 weeks
4	Post-injection performance monitoring	Two events, each lasting 5 days, will be performed at three months and six months after injections
5	Reporting	Final injection report will be submitted within six months after injections.

CERTIFICATION

I, Stewart Abrams, P.E., certify that I am currently a NYS registered professional engineer and that the Emulsified Zero-Valent Iron Remedial Design 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).



NYS Professional Engineer 078833

3/18/2022

Date

Stewart H. Abrams

Signature

TABLES

Table 1
Field Groundwater Analytical Results
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022

Sample ID York ID Sampling Date Client Matrix	NYSDEC TOGS Standards and Guidance Values - GA	158-LMW-26 21K0819-01 11/16/2021 11:40:00 AM Water		159-LMW-31 21K0819-02 11/16/2021 2:15:00 PM Water	
Compound		Result	Q	Result	Q
VOA, 8260 LOW MASTER	ug/L	ug/L		ug/L	
Dilution Factor		10		1	
1,1,1,2-Tetrachloroethane	5	0.200	U	0.200	U
1,1,1-Trichloroethane	5	0.200	U	16.400	
1,1,2,2-Tetrachloroethane	5	0.200	U	0.200	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	5	0.200	U	0.200	U
1,1,2-Trichloroethane	1	0.200	U	0.250	J
1,1-Dichloroethane	5	0.200	J	1.200	
1,1-Dichloroethylene	5	0.420	J	0.200	U
1,1-Dichloropropylene	5	0.200	U	0.200	U
1,2,3-Trichlorobenzene	5	0.200	U	0.200	U
1,2,3-Trichloropropane	0.0400	0.200	U	0.200	U
1,2,4-Trichlorobenzene	5	0.200	U	0.200	U
1,2,4-Trimethylbenzene	5	0.200	U	0.200	U
1,2-Dibromo-3-chloropropane	0.0400	0.200	U	0.200	U
1,2-Dibromoethane	0.00060	0.200	U	0.200	U
1,2-Dichlorobenzene	3	0.200	U	0.200	U
1,2-Dichloroethane	0.600	0.200	U	0.200	U
1,2-Dichloropropane	1	0.200	U	0.200	U
1,3,5-Trimethylbenzene	5	0.200	U	0.200	U
1,3-Dichlorobenzene	3	0.200	U	0.200	U
1,3-Dichloropropane	5	0.200	U	0.200	U
1,4-Dichlorobenzene	3	0.200	U	0.200	U
1,4-Dioxane	~	40	U	40	U
2,2-Dichloropropane	5	0.200	U	0.200	U
2-Butanone	50	0.200	U	0.200	U
2-Chlorotoluene	5	0.200	U	0.200	U
2-Hexanone	50	0.200	U	0.200	U
4-Chlorotoluene	5	0.200	U	0.200	U
4-Methyl-2-pentanone	~	0.200	U	0.200	U
Acetone	50	1	U	1	U
Acrolein	~	0.200	U	0.200	U
Acrylonitrile	~	0.200	U	0.200	U
Benzene	1	5.570		0.200	U
Bromobenzene	5	0.200	U	0.200	U
Bromochloromethane	5	0.200	U	0.200	U
Bromodichloromethane	50	0.200	U	0.200	U
Bromoform	50	0.200	U	0.200	U
Bromomethane	5	0.200	U	0.200	U
Carbon disulfide	~	0.240	J	0.200	U
Carbon tetrachloride	5	0.200	U	0.200	U
Chlorobenzene	5	0.200	U	0.200	U
Chloroethane	5	0.200	U	0.200	U
Chloroform	7	0.200	U	0.500	
Chloromethane	5	0.200	U	0.200	U
cis-1,2-Dichloroethylene	5	323	D	0.220	J
cis-1,3-Dichloropropylene	0.400	0.200	U	0.200	U
Cyclohexane	~	0.200	U	0.200	U
Dibromochloromethane	50	0.200	U	0.200	U
Dibromomethane	~	0.200	U	0.200	U
Dichlorodifluoromethane	5	0.200	U	0.200	U
Ethyl Benzene	5	0.200	U	0.200	U
Hexachlorobutadiene	0.500	0.200	U	0.200	U
Isopropylbenzene	5	0.200	U	0.200	U
Methyl acetate	~	0.200	U	0.200	U
Methyl tert-butyl ether (MTBE)	10	0.200	U	0.200	U
Methylcyclohexane	~	0.200	U	0.200	U
Methylene chloride	5	1	U	1	U
n-Butylbenzene	5	0.200	U	0.200	U
n-Propylbenzene	5	0.200	U	0.200	U
o-Xylene	5	0.200	U	0.200	U
p- & m- Xylenes	~	0.500	U	0.500	U
p-Isopropyltoluene	5	0.200	U	0.200	U
sec-Butylbenzene	5	0.200	U	0.200	U
Styrene	5	0.200	U	0.200	U
tert-Butyl alcohol (TBA)	~	0.500	U	0.500	U
tert-Butylbenzene	5	0.200	U	0.200	U
Tetrachloroethylene	5	0.200	U	3.930	
Toluene	5	0.200	U	0.200	U
trans-1,2-Dichloroethylene	5	1.460		0.200	U
trans-1,3-Dichloropropylene	0.400	0.200	U	0.200	U
Trichloroethylene	5	0.200	U	0.820	
Trichlorofluoromethane	5	0.200	U	0.200	U
Vinyl acetate	~	0.200	U	0.200	U
Vinyl Chloride	2	477	D	0.200	U
Xylenes, Total	5	0.600	U	0.600	U

Table 1
Field Groundwater Analytical Results
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022

NOTES:

ug/L - micrograms per liter

~ - no standard

Bold font - result exceeds NYSDEC TOGS Standards and Guidance Values - GA

Italic font - the method detection limit exceeds NYSDEC TOGS Standards and Guidance Values - GA

Q is the Qualifier Column with definitions as follows:

D=result is from an analysis that required a dilution

J=analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit) - data is estimated

U=analyte not detected at or above the level indicated

Table 2
Treatability Study Analytical Results
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022

Sample ID Sample Description Sampling Date Client Matrix	NYSDEC TOGS Standards and Guidance Values - GA	TCA_Control_T0 TCA_Control_1 Hour 11/22/2021 3:00:00 PM Water		TCA_Control_T1 TCA_Control_Week 1 11/29/2021 12:00:00 PM Water		TCA_Control_T2 TCA_Control_Week 2 12/6/2021 11:10:00 AM Water		TCA_Control_T3 TCA_Control_Week 6 1/4/2022 12:30:00 PM Water	
Compound		Result	Q	Result	Q	Result	Q	Result	Q
VOA, 8260 LOW MASTER	ug/L	ug/L		ug/L		ug/L		ug/L	
Dilution Factor		2		2		2		5	
1,1,1,2-Tetrachloroethane	5	0.400	U	0.400	U	0.400	U	1	U
1,1,1-Trichloroethane	5	399	D	349	D	267	D	299	D
1,1,2,2-Tetrachloroethane	5	0.400	U	0.400	U	0.400	U	1	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	0.400	U	0.400	U	0.400	U	1	U
1,1,2-Trichloroethane	1	0.400	U	0.400	U	0.400	U	1	U
1,1-Dichloroethane	5	0.400	U	0.400	U	0.400	U	1	U
1,1-Dichloroethylene	5	0.400	U	0.400	U	0.400	U	1	U
1,1-Dichloropropylene	5	0.400	U	0.400	U	0.400	U	1	U
1,2,3-Trichlorobenzene	5	0.400	U	0.400	U	0.400	U	1	U
1,2,3-Trichloropropane	0.0400	0.400	U	0.400	U	0.400	U	1	U
1,2,4-Trichlorobenzene	5	0.400	U	0.400	U	0.400	U	1	U
1,2,4-Trimethylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
1,2-Dibromo-3-chloropropane	0.0400	0.400	U	0.400	U	0.400	U	1	U
1,2-Dibromoethane	0.00060	0.400	U	0.400	U	0.400	U	1	U
1,2-Dichlorobenzene	3	0.400	U	0.400	U	0.400	U	1	U
1,2-Dichloroethane	0.600	0.400	U	0.400	U	0.400	U	1	U
1,2-Dichloropropane	1	0.400	U	0.400	U	0.400	U	1	U
1,3,5-Trimethylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
1,3-Dichlorobenzene	3	0.400	U	0.400	U	0.400	U	1	U
1,3-Dichloropropane	5	0.400	U	0.400	U	0.400	U	1	U
1,4-Dichlorobenzene	3	0.400	U	0.400	U	0.400	U	1	U
1,4-Dioxane	~	80	U	80	U	80	U	200	U
2,2-Dichloropropane	5	0.400	U	0.400	U	0.400	U	1	U
2-Butanone	50	0.400	U	0.400	U	0.400	U	1	U
2-Chlorotoluene	5	0.400	U	0.400	U	0.400	U	1	U
2-Hexanone	50	0.400	U	0.400	U	0.400	U	1	U
4-Chlorotoluene	5	0.400	U	0.400	U	0.400	U	1	U
4-Methyl-2-pentanone	~	0.400	U	0.400	U	0.400	U	1	U
Acetone	50	2	U	2	U	2	U	5	U
Acrolein	~	0.400	U	0.400	U	0.400	U	1	U
Acrylonitrile	~	0.400	U	0.400	U	0.400	U	1	U
Benzene	1	0.400	U	0.400	U	0.400	U	1	U
Bromobenzene	5	0.400	U	0.400	U	0.400	U	1	U
Bromochloromethane	5	0.400	U	0.400	U	0.400	U	1	U
Bromodichloromethane	50	0.400	U	0.400	U	0.400	U	1	U
Bromoform	50	0.400	U	0.400	U	0.400	U	1	U
Bromomethane	5	0.400	U	0.400	U	0.400	U	1	U
Carbon disulfide	~	0.400	U	0.400	U	0.400	U	1	U
Carbon tetrachloride	5	0.400	U	0.400	U	0.400	U	1	U
Chlorobenzene	5	0.400	U	0.400	U	0.400	U	1	U
Chloroethane	5	0.400	U	0.400	U	0.400	U	1	U
Chloroform	7	0.400	U	0.400	U	0.400	U	1	U

Table 2
Treatability Study Analytical Results
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022

Sample ID Sample Description Sampling Date Client Matrix	NYSDEC TOGS Standards and Guidance Values - GA	TCA_Control_T0 TCA_Control_1 Hour 11/22/2021 3:00:00 PM Water		TCA_Control_T1 TCA_Control_Week 1 11/29/2021 12:00:00 PM Water		TCA_Control_T2 TCA_Control_Week 2 12/6/2021 11:10:00 AM Water		TCA_Control_T3 TCA_Control_Week 6 1/4/2022 12:30:00 PM Water	
Compound		Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	5	0.400	U	0.400	U	0.400	U	1	U
cis-1,2-Dichloroethylene	5	0.400	U	0.400	U	0.400	U	1	U
cis-1,3-Dichloropropylene	0.400	0.400	U	0.400	U	0.400	U	1	U
Cyclohexane	~	0.400	U	0.400	U	0.400	U	1	U
Dibromochloromethane	50	0.400	U	0.400	U	0.400	U	1	U
Dibromomethane	~	0.400	U	0.400	U	0.400	U	1	U
Dichlorodifluoromethane	5	0.400	U	0.400	U	0.400	U	1	U
Ethyl Benzene	5	0.400	U	0.400	U	0.400	U	1	U
Hexachlorobutadiene	0.500	0.400	U	0.400	U	0.400	U	1	U
Isopropylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
Methyl acetate	~	0.400	U	0.400	U	0.400	U	1	U
Methyl tert-butyl ether (MTBE)	10	0.400	U	0.400	U	0.400	U	1	U
Methylcyclohexane	~	0.400	U	0.400	U	0.400	U	1	U
Methylene chloride	5	2	U	2	U	2	U	6.7	JBD
n-Butylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
n-Propylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
o-Xylene	5	0.400	U	0.400	U	0.400	U	1	U
p- & m- Xylenes	~	1	U	1	U	1	U	2.500	U
p-Isopropyltoluene	5	0.400	U	0.400	U	0.400	U	1	U
sec-Butylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
Styrene	5	0.400	U	0.400	U	0.400	U	1	U
tert-Butyl alcohol (TBA)	~	1	U	1	U	1	U	2.500	U
tert-Butylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
Tetrachloroethylene	5	0.400	U	0.400	U	0.400	U	1	U
Toluene	5	0.400	U	0.400	U	0.400	U	1	U
trans-1,2-Dichloroethylene	5	0.400	U	0.400	U	0.400	U	1	U
trans-1,3-Dichloropropylene	0.400	0.400	U	0.400	U	0.400	U	1	U
Trichloroethylene	5	0.400	U	0.400	U	0.400	U	1	U
Trichlorofluoromethane	5	0.400	U	0.400	U	0.400	U	1	U
Vinyl acetate	~	0.400	U	0.400	U	0.400	U	1	U
Vinyl Chloride	2	0.400	U	0.400	U	0.400	U	1	U
Xylenes, Total	5	1.200	U	1.200	U	1.200	U	3	U

Table 2
Treatability Study Analytical Results
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022

Sample ID Sample Description Sampling Date Client Matrix	NYSDEC TOGS Standards and Guidance Values - GA	TCA_Treated_T0 TCA_Treated_1 Hour 11/22/2021 3:00:00 PM Water		TCA_Treated_T1 TCA_Treated_Week 1 11/29/2021 12:00:00 PM Water		TCA_Treated_T2 TCA_Treated_Week 2 12/6/2021 11:10:00 AM Water		TCA_Treated_T3 TCA_Treated_Week 6 1/4/2022 12:35:00 PM Water	
Compound		Result	Q	Result	Q	Result	Q	Result	Q
VOA, 8260 LOW MASTER	ug/L	ug/L		ug/L		ug/L		ug/L	
Dilution Factor		2		5		5		5	
1,1,1,2-Tetrachloroethane	5	0.400	U	1	U	1	U	1	U
1,1,1-Trichloroethane	5	143	D	291	D	340	D	1	U
1,1,2,2-Tetrachloroethane	5	0.400	U	1	U	1	U	1	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	0.400	U	1	U	1	U	1	U
1,1,2-Trichloroethane	1	0.400	U	1	U	1	U	1	U
1,1-Dichloroethane	5	6	JD	1	U	38	D	30.3	D
1,1-Dichloroethylene	5	0.400	U	1	U	1	U	1	U
1,1-Dichloropropylene	5	0.400	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene	5	0.400	U	1	U	1	U	1	U
1,2,3-Trichloropropane	0.0400	0.400	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	5	0.400	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene	5	0.400	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.0400	0.400	U	1	U	1	U	1	U
1,2-Dibromoethane	0.00060	0.400	U	1	U	1	U	1	U
1,2-Dichlorobenzene	3	0.400	U	1	U	1	U	1	U
1,2-Dichloroethane	0.600	0.400	U	1	U	1	U	1	U
1,2-Dichloropropane	1	0.400	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene	5	0.400	U	1	U	1	U	1	U
1,3-Dichlorobenzene	3	0.400	U	1	U	1	U	1	U
1,3-Dichloropropane	5	0.400	U	1	U	1	U	1	U
1,4-Dichlorobenzene	3	0.400	U	1	U	1	U	1	U
1,4-Dioxane	~	80	U	200	U	200	U	200	U
2,2-Dichloropropane	5	0.400	U	1	U	1	U	1	U
2-Butanone	50	23.3	D	149	D	215	D	132	D
2-Chlorotoluene	5	0.400	U	1	U	1	U	1	U
2-Hexanone	50	0.400	U	1	U	1	U	1	U
4-Chlorotoluene	5	0.400	U	1	U	1	U	1	U
4-Methyl-2-pentanone	~	0.400	U	1	U	1	U	1	U
Acetone	50	28	D	62	D	27.6	D	5	U
Acrolein	~	107	D	116	D	36	D	25.800	D
Acrylonitrile	~	0.400	U	1	U	1	U	1	U
Benzene	1	0.400	U	1	U	1	U	1	U
Bromobenzene	5	0.400	U	1	U	1	U	1	U
Bromochloromethane	5	0.400	U	1	U	1	U	1	U
Bromodichloromethane	50	0.400	U	1	U	1	U	1	U
Bromoform	50	0.400	U	1	U	1	U	1	U
Bromomethane	5	0.400	U	1	U	1	U	1	U
Carbon disulfide	~	0.400	U	1	U	1	U	1	U
Carbon tetrachloride	5	0.400	U	1	U	1	U	1	U
Chlorobenzene	5	0.400	U	1	U	1	U	1	U
Chloroethane	5	0.400	U	1	U	1	U	1	U
Chloroform	7	0.400	U	1	U	1	U	1	U

Table 2
Treatability Study Analytical Results
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022

Sample ID Sample Description Sampling Date Client Matrix	NYSDEC TOGS Standards and Guidance Values - GA	TCA_Treated_T0 TCA_Treated_1 Hour 11/22/2021 3:00:00 PM Water		TCA_Treated_T1 TCA_Treated_Week 1 11/29/2021 12:00:00 PM Water		TCA_Treated_T2 TCA_Treated_Week 2 12/6/2021 11:10:00 AM Water		TCA_Treated_T3 TCA_Treated_Week 6 1/4/2022 12:35:00 PM Water	
Compound		Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	5	0.400	U	1	U	1	U	1	U
cis-1,2-Dichloroethylene	5	0.400	U	1	U	1	U	1	U
cis-1,3-Dichloropropylene	0.400	0.400	U	1	U	1	U	1	U
Cyclohexane	~	0.400	U	1	U	1	U	1	U
Dibromochloromethane	50	0.400	U	1	U	1	U	1	U
Dibromomethane	~	0.400	U	1	U	1	U	1	U
Dichlorodifluoromethane	5	0.400	U	1	U	1	U	1	U
Ethyl Benzene	5	0.400	U	1	U	1	U	1	U
Hexachlorobutadiene	0.500	0.400	U	1	U	1	U	1	U
Isopropylbenzene	5	0.400	U	1	U	1	U	1	U
Methyl acetate	~	0.400	U	1	U	1	U	1	U
Methyl tert-butyl ether (MTBE)	10	0.400	U	1	U	1	U	1	U
Methylcyclohexane	~	0.400	U	1	U	1	U	1	U
Methylene chloride	5	2	U	5	U	188	BD	13.6	JBD
n-Butylbenzene	5	0.400	U	1	U	1	U	1	U
n-Propylbenzene	5	0.400	U	1	U	1	U	1	U
o-Xylene	5	0.400	U	1	U	1	U	1	U
p- & m- Xylenes	~	1	U	2.500	U	2.500	U	2.500	U
p-Isopropyltoluene	5	0.400	U	1	U	1	U	1	U
sec-Butylbenzene	5	0.400	U	1	U	1	U	1	U
Styrene	5	0.400	U	1	U	1	U	1	U
tert-Butyl alcohol (TBA)	~	1	U	2.500	U	2.500	U	2.500	U
tert-Butylbenzene	5	0.400	U	1	U	1	U	1	U
Tetrachloroethylene	5	0.400	U	1	U	1	U	1	U
Toluene	5	0.400	U	1	U	1	U	1	U
trans-1,2-Dichloroethylene	5	0.400	U	1	U	1	U	1	U
trans-1,3-Dichloropropylene	0.400	0.400	U	1	U	1	U	1	U
Trichloroethylene	5	0.400	U	1	U	1	U	1	U
Trichlorofluoromethane	5	0.400	U	1	U	1	U	1	U
Vinyl acetate	~	0.400	U	1	U	1	U	1	U
Vinyl Chloride	2	0.400	U	1	U	1	U	1	U
Xylenes, Total	5	1.200	U	3	U	3	U	3	U

Table 2
Treatability Study Analytical Results
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022

Sample ID Sample Description Sampling Date Client Matrix	NYSDEC TOGS Standards and Guidance Values - GA	VC_Control_T0 VC_Control_1 Hour 11/22/2021 3:00:00 PM Water		VC_Control_T1 VC_Control_Week 1 11/29/2021 12:00:00 PM Water		VC_Control_T2 VC_Control_Week 2 12/6/2021 11:10:00 AM Water		VC_Control_T3 VC_Control_Week 6 1/4/2022 12:40:00 PM Water	
Compound		Result	Q	Result	Q	Result	Q	Result	Q
VOA, 8260 LOW MASTER	ug/L	ug/L		ug/L		ug/L		ug/L	
Dilution Factor		2		2		2		5	
1,1,1,2-Tetrachloroethane	5	0.400	U	0.400	U	0.400	U	1	U
1,1,1-Trichloroethane	5	0.400	U	0.400	U	0.400	U	1	U
1,1,2,2-Tetrachloroethane	5	0.400	U	0.400	U	0.400	U	1	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	0.400	U	0.400	U	0.400	U	1	U
1,1,2-Trichloroethane	1	0.400	U	0.400	U	0.400	U	1	U
1,1-Dichloroethane	5	0.400	U	0.400	U	0.400	U	1	U
1,1-Dichloroethylene	5	0.400	U	0.400	U	0.400	U	1	U
1,1-Dichloropropylene	5	0.400	U	0.400	U	0.400	U	1	U
1,2,3-Trichlorobenzene	5	0.400	U	0.400	U	0.400	U	1	U
1,2,3-Trichloropropane	0.0400	0.400	U	0.400	U	0.400	U	1	U
1,2,4-Trichlorobenzene	5	0.400	U	0.400	U	0.400	U	1	U
1,2,4-Trimethylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
1,2-Dibromo-3-chloropropane	0.0400	0.400	U	0.400	U	0.400	U	1	U
1,2-Dibromoethane	0.00060	0.400	U	0.400	U	0.400	U	1	U
1,2-Dichlorobenzene	3	0.400	U	0.400	U	0.400	U	1	U
1,2-Dichloroethane	0.600	0.400	U	0.400	U	0.400	U	1	U
1,2-Dichloropropane	1	0.400	U	0.400	U	0.400	U	1	U
1,3,5-Trimethylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
1,3-Dichlorobenzene	3	0.400	U	0.400	U	0.400	U	1	U
1,3-Dichloropropane	5	0.400	U	0.400	U	0.400	U	1	U
1,4-Dichlorobenzene	3	0.400	U	0.400	U	0.400	U	1	U
1,4-Dioxane	~	80	U	80	U	80	U	200	U
2,2-Dichloropropane	5	0.400	U	0.400	U	0.400	U	1	U
2-Butanone	50	0.400	U	0.400	U	0.400	U	1	U
2-Chlorotoluene	5	0.400	U	0.400	U	0.400	U	1	U
2-Hexanone	50	0.400	U	0.400	U	0.400	U	1	U
4-Chlorotoluene	5	0.400	U	0.400	U	0.400	U	1	U
4-Methyl-2-pentanone	~	0.400	U	0.400	U	0.400	U	1	U
Acetone	50	2	U	2	U	2	U	5	U
Acrolein	~	0.400	U	0.400	U	0.400	U	1	U
Acrylonitrile	~	0.400	U	0.400	U	0.400	U	1	U
Benzene	1	0.400	U	0.400	U	0.400	U	1	U
Bromobenzene	5	0.400	U	0.400	U	0.400	U	1	U
Bromochloromethane	5	0.400	U	0.400	U	0.400	U	1	U
Bromodichloromethane	50	0.400	U	0.400	U	0.400	U	1	U
Bromoform	50	0.400	U	0.400	U	0.400	U	1	U
Bromomethane	5	0.400	U	0.400	U	0.400	U	1	U
Carbon disulfide	~	0.400	U	0.400	U	0.400	U	1	U
Carbon tetrachloride	5	0.400	U	0.400	U	0.400	U	1	U
Chlorobenzene	5	0.400	U	0.400	U	0.400	U	1	U
Chloroethane	5	0.400	U	0.400	U	0.400	U	1	U
Chloroform	7	0.400	U	0.400	U	0.400	U	1	U

Table 2
Treatability Study Analytical Results
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022

Sample ID Sample Description Sampling Date Client Matrix	NYSDEC TOGS Standards and Guidance Values - GA	VC_Control_T0 VC_Control_1 Hour 11/22/2021 3:00:00 PM Water		VC_Control_T1 VC_Control_Week 1 11/29/2021 12:00:00 PM Water		VC_Control_T2 VC_Control_Week 2 12/6/2021 11:10:00 AM Water		VC_Control_T3 VC_Control_Week 6 1/4/2022 12:40:00 PM Water	
Compound		Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	5	0.400	U	0.400	U	0.400	U	1	U
cis-1,2-Dichloroethylene	5	237	D	250	D	240	D	254	D
cis-1,3-Dichloropropylene	0.400	0.400	U	0.400	U	0.400	U	1	U
Cyclohexane	~	0.400	U	0.400	U	0.400	U	1	U
Dibromochloromethane	50	0.400	U	0.400	U	0.400	U	1	U
Dibromomethane	~	0.400	U	0.400	U	0.400	U	1	U
Dichlorodifluoromethane	5	0.400	U	0.400	U	0.400	U	1	U
Ethyl Benzene	5	0.400	U	0.400	U	0.400	U	1	U
Hexachlorobutadiene	0.500	0.400	U	0.400	U	0.400	U	1	U
Isopropylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
Methyl acetate	~	0.400	U	0.400	U	0.400	U	1	U
Methyl tert-butyl ether (MTBE)	10	0.400	U	0.400	U	0.400	U	1	U
Methylcyclohexane	~	0.400	U	0.400	U	0.400	U	1	U
Methylene chloride	5	2	U	2	U	2	U	18.200	JBD
n-Butylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
n-Propylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
o-Xylene	5	0.400	U	0.400	U	0.400	U	1	U
p- & m- Xylenes	~	1	U	1	U	1	U	2.500	U
p-Isopropyltoluene	5	0.400	U	0.400	U	0.400	U	1	U
sec-Butylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
Styrene	5	0.400	U	0.400	U	0.400	U	1	U
tert-Butyl alcohol (TBA)	~	1	U	1	U	1	U	2.500	U
tert-Butylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
Tetrachloroethylene	5	0.400	U	0.400	U	0.400	U	1	U
Toluene	5	0.400	U	0.400	U	0.400	U	1	U
trans-1,2-Dichloroethylene	5	0.400	U	0.400	U	0.400	U	1	U
trans-1,3-Dichloropropylene	0.400	0.400	U	0.400	U	0.400	U	1	U
Trichloroethylene	5	0.400	U	0.400	U	0.400	U	1	U
Trichlorofluoromethane	5	0.400	U	0.400	U	0.400	U	1	U
Vinyl acetate	~	0.400	U	0.400	U	0.400	U	1	U
Vinyl Chloride	2	381	D	394	D	417	D	311	D
Xylenes, Total	5	1.200	U	1.200	U	1.200	U	3	U

Table 2
Treatability Study Analytical Results
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
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Compound		Result	Q	Result	Q	Result	Q	Result	Q
VOA, 8260 LOW MASTER	ug/L	ug/L		ug/L		ug/L		ug/L	
Dilution Factor		2		2		2		5	
1,1,1,2-Tetrachloroethane	5	0.400	U	0.400	U	0.400	U	1	U
1,1,1-Trichloroethane	5	0.400	U	0.400	U	0.400	U	1	U
1,1,2,2-Tetrachloroethane	5	0.400	U	0.400	U	0.400	U	1	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	0.400	U	0.400	U	0.400	U	1	U
1,1,2-Trichloroethane	1	0.400	U	0.400	U	0.400	U	1	U
1,1-Dichloroethane	5	0.400	U	0.400	U	0.400	U	1	U
1,1-Dichloroethylene	5	0.400	U	0.400	U	0.400	U	1	U
1,1-Dichloropropylene	5	0.400	U	0.400	U	0.400	U	1	U
1,2,3-Trichlorobenzene	5	0.400	U	0.400	U	0.400	U	1	U
1,2,3-Trichloropropane	0.0400	0.400	U	0.400	U	0.400	U	1	U
1,2,4-Trichlorobenzene	5	0.400	U	0.400	U	0.400	U	1	U
1,2,4-Trimethylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
1,2-Dibromo-3-chloropropane	0.0400	0.400	U	0.400	U	0.400	U	1	U
1,2-Dibromoethane	0.00060	0.400	U	0.400	U	0.400	U	1	U
1,2-Dichlorobenzene	3	0.400	U	0.400	U	0.400	U	1	U
1,2-Dichloroethane	0.600	0.400	U	0.400	U	0.400	U	1	U
1,2-Dichloropropane	1	0.400	U	0.400	U	0.400	U	1	U
1,3,5-Trimethylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
1,3-Dichlorobenzene	3	0.400	U	0.400	U	0.400	U	1	U
1,3-Dichloropropane	5	0.400	U	0.400	U	0.400	U	1	U
1,4-Dichlorobenzene	3	0.400	U	0.400	U	0.400	U	1	U
1,4-Dioxane	~	80	U	80	U	80	U	200	U
2,2-Dichloropropane	5	0.400	U	0.400	U	0.400	U	1	U
2-Butanone	50	0.400	U	0.400	U	0.400	U	1	U
2-Chlorotoluene	5	0.400	U	0.400	U	0.400	U	1	U
2-Hexanone	50	0.400	U	0.400	U	0.400	U	1	U
4-Chlorotoluene	5	0.400	U	0.400	U	0.400	U	1	U
4-Methyl-2-pentanone	~	0.400	U	0.400	U	0.400	U	1	U
Acetone	50	25.800	D	12.600	D	2	U	5	U
Acrolein	~	61.200	D	16.500	D	0.400	U	1	U
Acrylonitrile	~	0.400	U	0.400	U	0.400	U	1	U
Benzene	1	0.400	U	0.400	U	0.400	U	1	U
Bromobenzene	5	0.400	U	0.400	U	0.400	U	1	U
Bromochloromethane	5	0.400	U	0.400	U	0.400	U	1	U
Bromodichloromethane	50	0.400	U	0.400	U	0.400	U	1	U
Bromoform	50	0.400	U	0.400	U	0.400	U	1	U
Bromomethane	5	0.400	U	0.400	U	0.400	U	1	U
Carbon disulfide	~	0.400	U	0.400	U	0.400	U	1	U
Carbon tetrachloride	5	0.400	U	0.400	U	0.400	U	1	U
Chlorobenzene	5	0.400	U	0.400	U	0.400	U	1	U
Chloroethane	5	0.400	U	0.400	U	0.400	U	1	U
Chloroform	7	0.400	U	0.400	U	0.400	U	1	U

Table 2
Treatability Study Analytical Results
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022

Sample ID Sample Description Sampling Date Client Matrix	NYSDEC TOGS Standards and Guidance Values - GA	VC_Treated_T0 VC_Treated_1 Hour 11/22/2021 3:00:00 PM Water		VC_Treated_T1 VC_Treated_Week 1 11/29/2021 12:00:00 PM Water		VC_Treated_T2 VC_Treated_Week 2 12/6/2021 11:10:00 AM Water		VC_Treated_T3 VC_Treated_Week 6 1/4/2022 12:45:00 PM Water	
Compound		Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	5	0.400	U	0.400	U	0.400	U	1	U
cis-1,2-Dichloroethylene	5	247	D	310	D	223	D	155	D
cis-1,3-Dichloropropylene	0.400	0.400	U	0.400	U	0.400	U	1	U
Cyclohexane	~	0.400	U	0.400	U	0.400	U	1	U
Dibromochloromethane	50	0.400	U	0.400	U	0.400	U	1	U
Dibromomethane	~	0.400	U	0.400	U	0.400	U	1	U
Dichlorodifluoromethane	5	0.400	U	0.400	U	0.400	U	1	U
Ethyl Benzene	5	0.400	U	0.400	U	0.400	U	1	U
Hexachlorobutadiene	0.500	0.400	U	0.400	U	0.400	U	1	U
Isopropylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
Methyl acetate	~	0.400	U	0.400	U	0.400	U	1	U
Methyl tert-butyl ether (MTBE)	10	0.400	U	0.400	U	0.400	U	1	U
Methylcyclohexane	~	0.400	U	0.400	U	0.400	U	1	U
Methylene chloride	5	2	U	2	U	2	U	24.900	JBD
n-Butylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
n-Propylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
o-Xylene	5	0.400	U	0.400	U	0.400	U	1	U
p- & m- Xylenes	~	1	U	1	U	1	U	2.500	U
p-Isopropyltoluene	5	0.400	U	0.400	U	0.400	U	1	U
sec-Butylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
Styrene	5	0.400	U	0.400	U	0.400	U	1	U
tert-Butyl alcohol (TBA)	~	1	U	1	U	1	U	2.500	U
tert-Butylbenzene	5	0.400	U	0.400	U	0.400	U	1	U
Tetrachloroethylene	5	0.400	U	0.400	U	0.400	U	1	U
Toluene	5	0.400	U	0.400	U	0.400	U	1	U
trans-1,2-Dichloroethylene	5	0.400	U	0.400	U	0.400	U	1	U
trans-1,3-Dichloropropylene	0.400	0.400	U	0.400	U	0.400	U	1	U
Trichloroethylene	5	0.400	U	0.400	U	0.400	U	1	U
Trichlorofluoromethane	5	0.400	U	0.400	U	0.400	U	1	U
Vinyl acetate	~	0.400	U	0.400	U	0.400	U	1	U
Vinyl Chloride	2	542	D	558	D	430	D	261	D
Xylenes, Total	5	1.200	U	1.200	U	1.200	U	3	U

Table 2
Treatability Study Analytical Results
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
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NOTES:

ug/L - micrograms per liter

~ - no standard

Bold font - result exceeds NYSDEC TOGS Standards and Guidance Values - GA

Italic font - the method detection limit exceeds NYSDEC TOGS Standards and Guidance Values - GA

Q is the Qualifier Column with definitions as follows:

D=result is from an analysis that required a dilution

J=analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit) - data is estimated

U=analyte not detected at or above the level indicated

Table 3
Reagent Demand & Injection Volume Summary

Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022

Enhanced ZVI Remedial Design		Vinyl Chloride Treatment Zone	1,1,1-TCA Treatment Zone
Treatment Zone			
Area	square feet	2,650	6,030
Depth Interval	feet bgs	8 to 13	8 to 13
Treatment Thickness	feet	5	5
Volume of the Treatment Zone	cubic feet	13,250	30,150
Soil Density	lb/cu ft	110	110
Treatment Soil Mass	Kilograms	662,500	1,507,500
Porosity	-	0.3	0.3
Pore Volume within Treatment Area	gallons	29,733	67,657
%Target Injection Volume	%	20%	20%
Target Injection Volume	gallons	5,947	13,531
Injection ROI	feet	10.0	10.0
Number of Injection Points	points	16	32
Reagent Dosage			
EVO Dosage	g/kg	3.75	9.00
ZVI Dosage	g/kg	2.50	6.00
*Additional Yeast Extract	mg/L	500	500
*Additional Diammonium Phosphate	mg/L	500	500
SDC-9™ Dosage	cell/ml	1.00E+08	1.00E+08
Reagent Demand			
EVO Demand	pounds	5,472	29,884
ZVI Demand	pounds	3,648	19,923
Yeast Extract Demand	pounds	25	56
Diammonium Phosphate Demand	pounds	25	56
SDC-9™ Demand	gallons	6	14
Reagent Volumes			
EVO + ZVI Mix	gallons	760	4,151
SDC-9™	gallons	5.9	13.5
Dilution Water	gallons	5,181	9,367
Total Reagent Volume	gallons	5,947	13,531
Injection Volume At Each Injection Point			
EVO + ZVI Mix	gallons	48	130
SDC-9™	gallons	0.4	0.4
Dilution Water	gallons	324	293
Total Injection Volume	gallons	372	423
Injection Volume per Foot	gallons	74	85

Notes:

lb/ cu ft - pounds per cubic feet
g/Kg - grams per kilogram
mg/L - milligrams per liter
cell/ml - cells per milliliter
EVO - emulsified vegetable oil
ZVI - Zero valent iron
ROI - Radius of influence
% - Percent

* - Yeast extract and diammonium phosphate are included in commercial EVO formulation. Additional dosage of yeast extract and diammonium phosphate will be added to facilitate microbial growth.

1. Final amendment concentrations in the injection solution and injection volume per location may be modified based upon field conditions during the injections.
2. 44 micron ZVI and 5 micron droplet size EVO will be used.

Table 4
Analytical Sampling Plan
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022

Treatment Zone	Well ID	Screen Interval (feet bgs)	Analytical Parameters						
			VOCs	Iron and Manganese ^a	Nitrate, Nitrite, Sulfate, Sulfide, and Chloride	Dissolved Gases (Methane, Ethene, Ethane)	TDS	Alkalinity	DHC and EBAC
Vinyl Chloride	LMW-35	8-13	X	X	X	X	X	X	X
	LMW-36	8-13	X	X	X	X	X	X	X
	LMW-37	8-13	X	X	X	X	X	X	X
	LMW-38	8-13	X	X	X	X	X	X	X
	LMW-39	8-13	X	X	X	X	X	X	X
1,1,1-TCA	LMW-40	8-13	X	X	X	X	X	X	X
	LMW-41	8-13	X	X	X	X	X	X	X
	LMW-42	8-13	X	X	X	X	X	X	X
	LMW-43	8-13	X	X	X	X	X	X	X
	LMW-44	8-13	X	X	X	X	X	X	X
	LMW-45	8-13	X	X	X	X	X	X	X
	LMW-46	8-13	X	X	X	X	X	X	X
	LMW-47	8-13	X	X	X	X	X	X	X
	LMW-48	8-13	X	X	X	X	X	X	X
	LMW-49	8-13	X	X	X	X	X	X	X
	LMW-50	8-13	X	X	X	X	X	X	X
	LMW-51	8-13	X	X	X	X	X	X	X

Notes:

feet bgs - feet below ground surface

VOCs - volatile organic compounds

TDS - total dissolved solids

DHC - Dehalococcoides

EBAC - total bacteria

^a - Total and dissolved iron and manganese will be analyzed

1. Groundwater samples will be collected using low flow techniques.

2. Duplicates, field blanks and trip blanks will be collected as part of the sampling events for quality assurance and quality control.

3. Water quality parameters include pH, temperature, dissolved oxygen, specific conductivity, oxidation reduction potential, and turbidity will be measured using a Horiba water quality meter, or equivalent.

4. Baseline samples and two rounds of post-injection (3 month and 6 month) groundwater monitoring samples will be collected from each well listed above.

Table 5
Injection Monitoring Plan

Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022

Location	Matrix	Parameters	Frequency	Monitoring Instruments/Method
Monitoring Locations ^a	Groundwater ^b	Groundwater elevation	Before injection event begins and 2 to 3 times daily during injections	Water level meter
		Field parameters	Before injection event begins and 2 to 3 times daily during injection	Horiba U-22 or YSI meter
	Well Field	Surfacing/Leaks	Before injection event begins and every 30 - 60 mins	Visual Inspection
Injection System including Skid, Distribution Manifold and Injection Well Heads ^c	Injection Mix	Flow-rate, volume injected and injection pressure	Every 30 - 60 mins	Pressure gauges, and totalizers
Anaerobic Water Tank	Water	Dissolved oxygen and pH	2 to 3 times daily during injection	Horiba U-22 or YSI meter

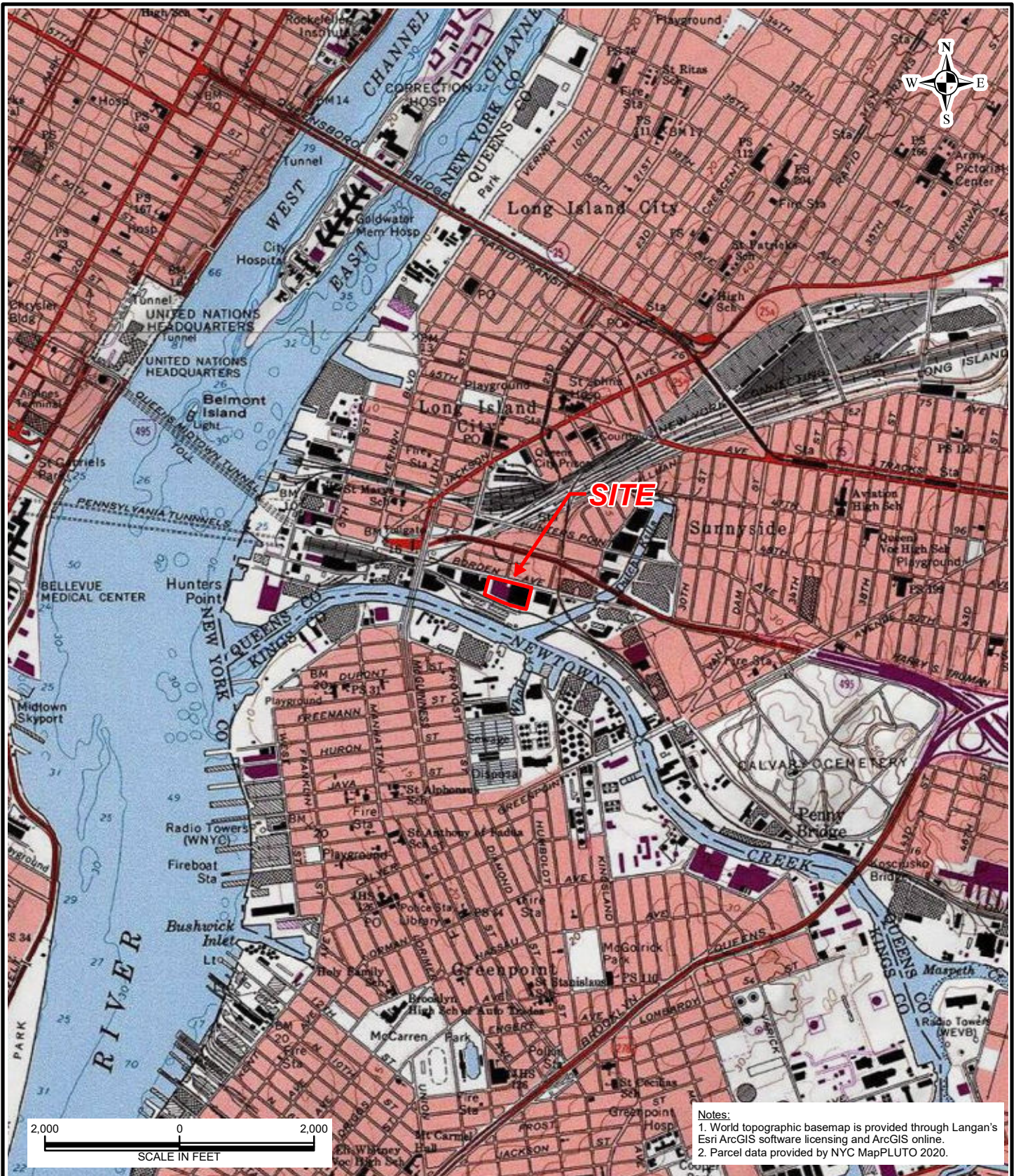
Notes:

Field parameters - dissolved oxygen, oxidation-reduction potential, conductivity, pH, temperature, turbidity, total dissolved solids and

^a - Wells for injection monitoring will include all wells identified in Table 4.

^b - Groundwater samples will be retrieved with a bailer for measurement of field parameters.

FIGURES



LANGAN

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Langan Engineering & Environmental Services, Inc.
Langan Engineering, Environmental, Surveying,
Landscape Architecture and Geology, D.P.C.
Langan International LLC
Collectively known as Langan

NJ CERTIFICATE OF AUTHORIZATION No. 24GA27996400

Project

23-30 BORDEN
AVENUE DEVELOPMENT
NYSDEC BCP SITE No.: C241238

BLOCK No. 68, LOT No. 38
LONG ISLAND CITY

QUEENS COUNTY

NEW YORK

Drawing Title

USGS
SITE LOCATION
MAP

Project No.

100766601

Date

10/20/2020

Scale

1"=2,000'

Drawn By

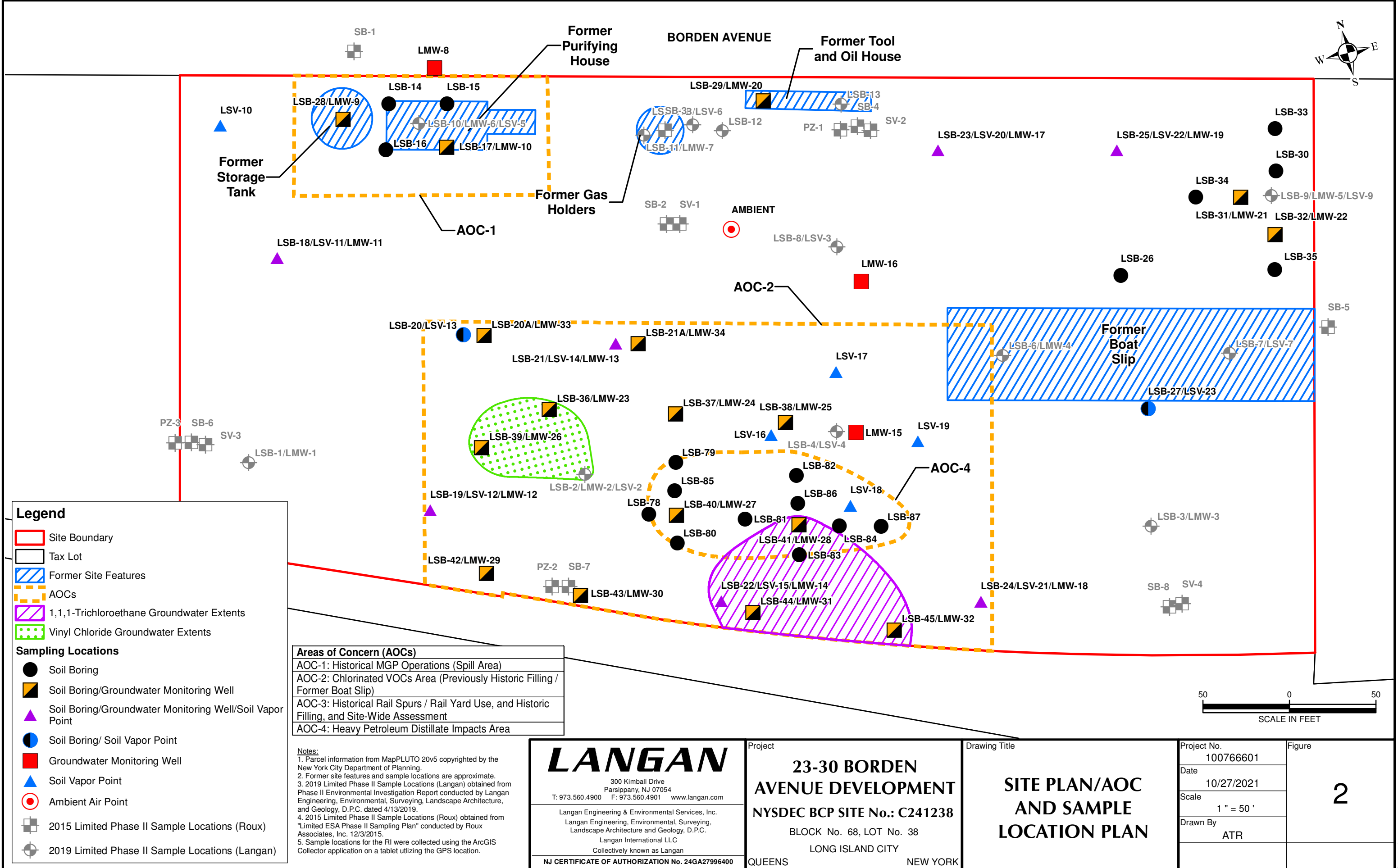
IHB

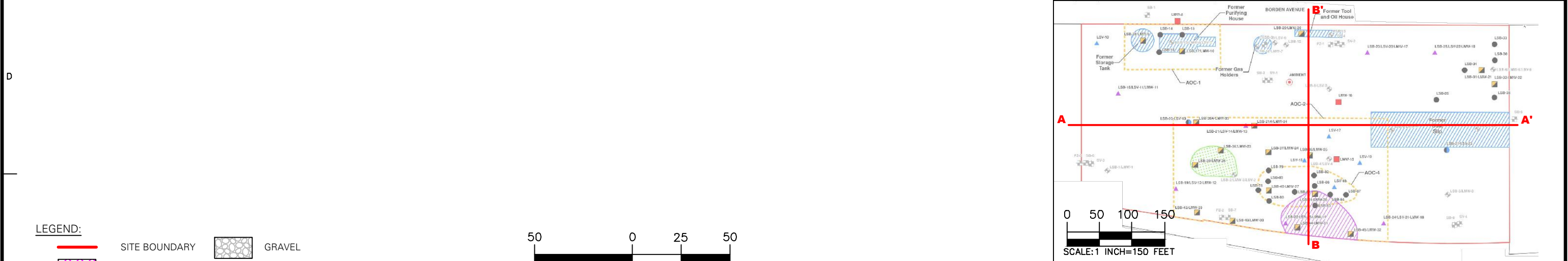
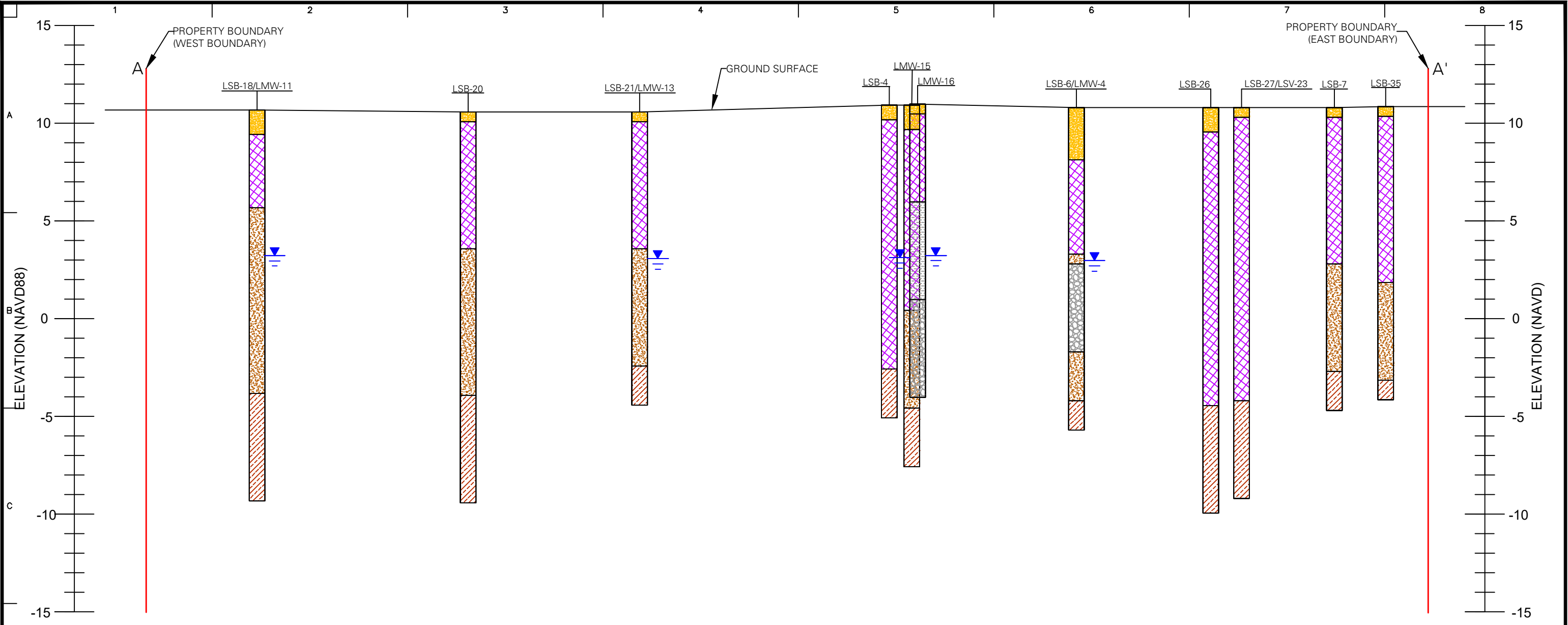
Last Revised

5/20/2021

Figure

1





LEGEND:

	SITE BOUNDARY		GRAVEL
	FILL		SAND AND GRAVEL
	SAND		CLAY
	CONCRETE		GROUNDWATER ELEVATION

50 0 25 50
HORIZONTAL SCALE: 1 INCH = 50 FEET
VERTICAL EXAGGERATION: 10:1

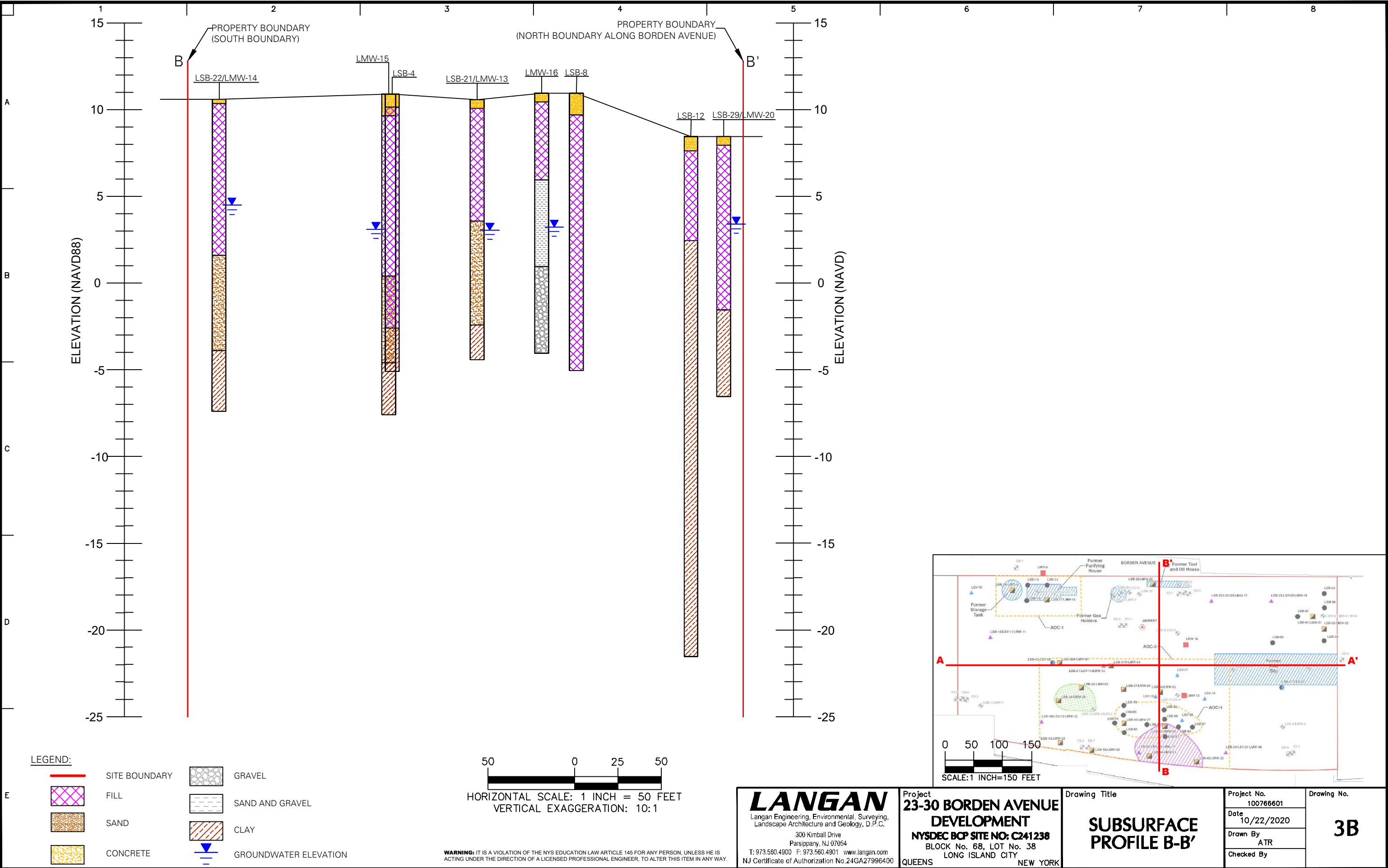
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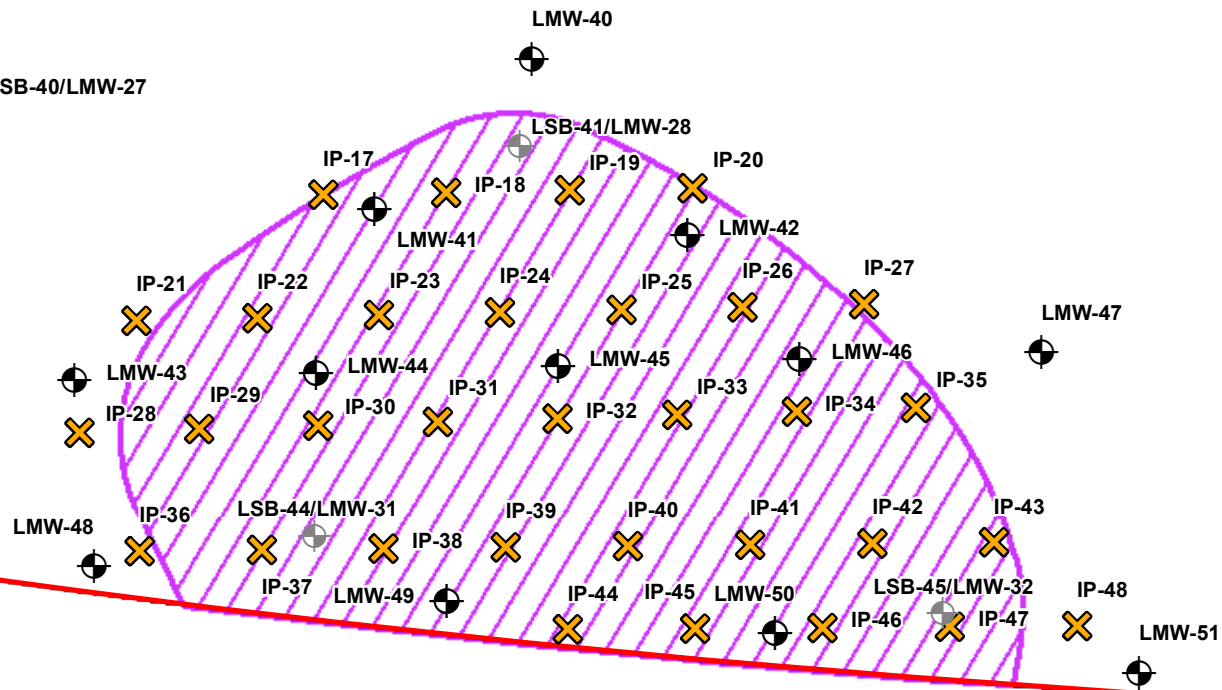
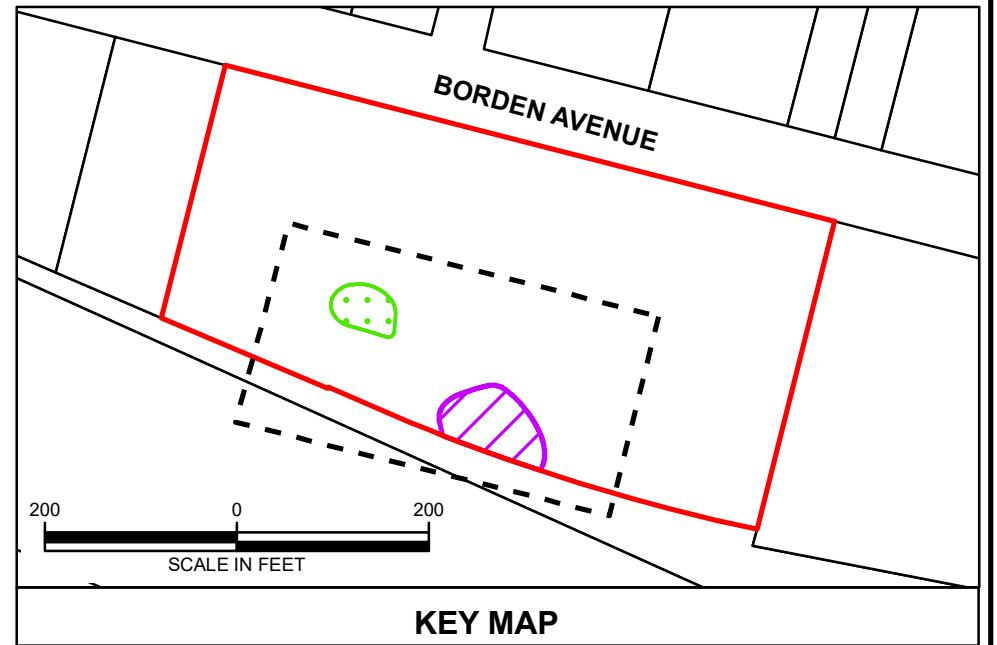
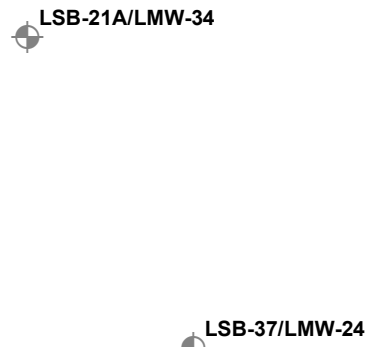
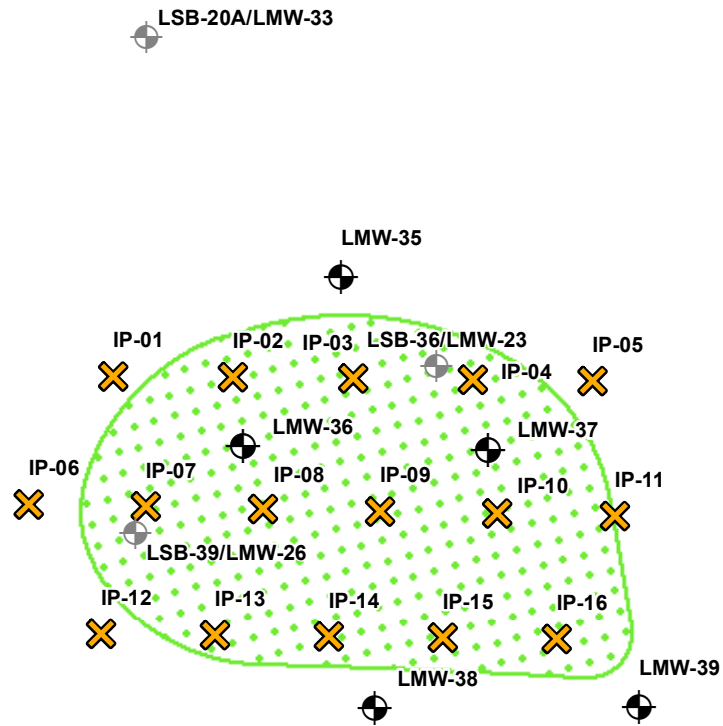
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NJ Certificate of Authorization No.24GA27996400

Project
**23-30 BORDEN AVENUE
DEVELOPMENT**
NYSDEC BCP SITE NO: C241238
BLOCK No. 68, LOT No. 38
LONG ISLAND CITY
QUEENS NEW YORK

Drawing Title
**SUBSURFACE
PROFILE A-A'**

Project No. 100766601	Drawing No. 3A
Date 10/22/2020	
Drawn By ATR	
Checked By	





WARNING: It is a violation of the NYS Education Law Article 145 for any person, unless he is acting under the direction of a licensed professional engineer, to alter this item in any way.

Notes:
1. Parcel information from MapPLUTO 20v5 copyrighted by the New York City Department of Planning.
2. The proposed groundwater monitoring wells shall be screened between 8 and 13 feet below ground surface.
3. The locations of the proposed injection points and monitoring wells are approximate and may change based on observations in the field.

Legend

- Proposed Effectiveness Monitoring Well
- Existing Monitoring Well
- Proposed Injection Point
- Site Boundary
- Tax Lot
- 1,1,1-Trichloroethane Treatment Area
- Vinyl Chloride Treatment Area



LANGAN

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Langan Engineering, Environmental, Surveying,
Landscape Architecture and Geology, D.P.C.
Langan International LLC
Collectively known as Langan
NJ CERTIFICATE OF AUTHORIZATION No. 24GA27996400

Project

23-30 BORDEN
AVENUE DEVELOPMENT
NYSDEC BCP SITE No.: C241238
BLOCK No. 68, LOT No. 38
LONG ISLAND CITY
QUEENS NEW YORK

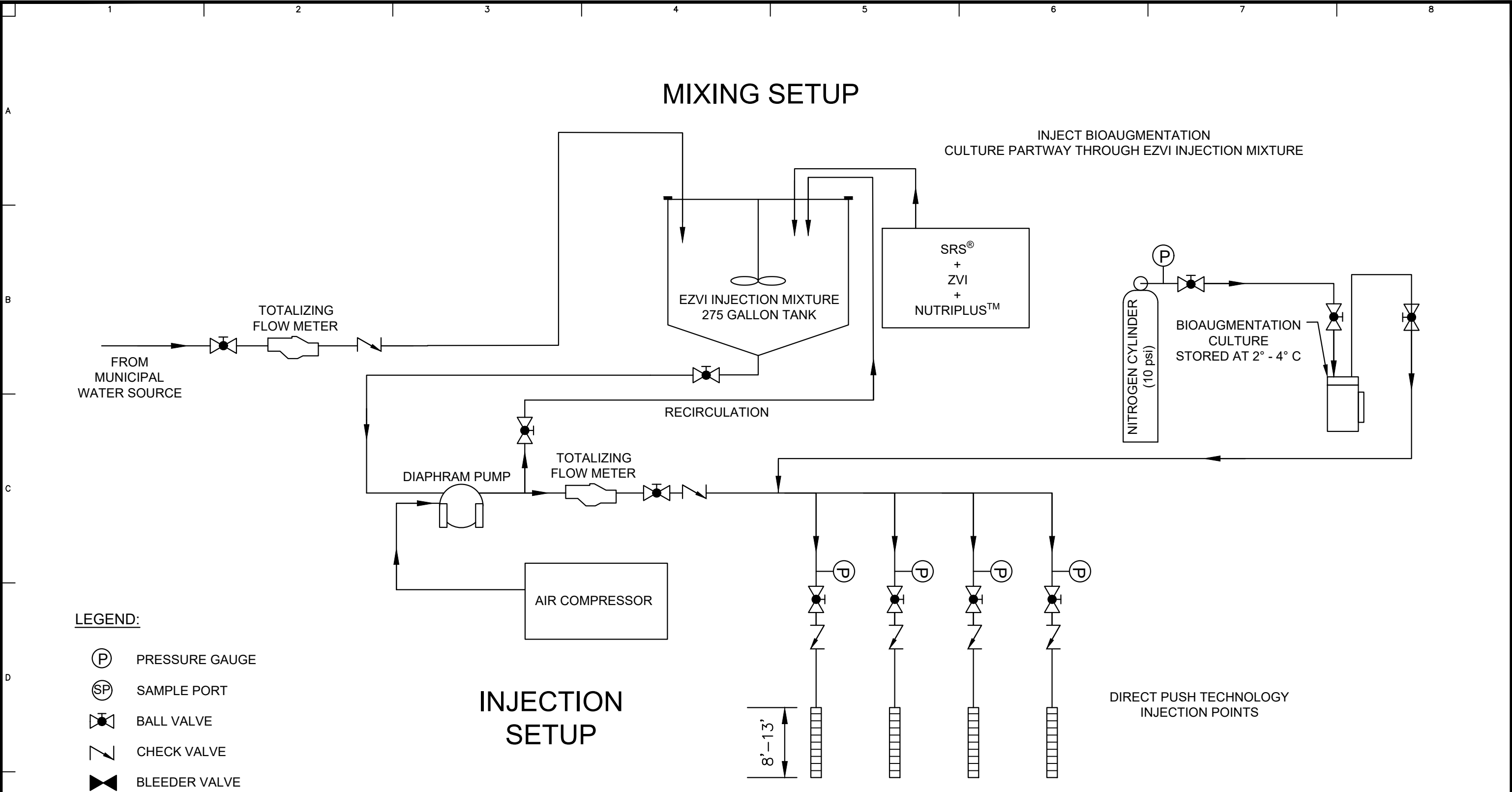
Drawing Title

TREATMENT AREA
AND INJECTION
LOCATIONS

Project No.
100766601
Date
1/5/2022
Scale
1" = 25'
Drawn By
IHB

Figure

6



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NJ Certificate of Authorization No.24GA27996400

Project
**23-30 BORDEN AVENUE
DEVELOPMENT**
BLOCK No. 68, LOT No. 38
LONG ISLAND CITY
QUEENS NEW YORK

Drawing Title
**INJECTION PROCESS
DIAGRAM**

Project No.
100766601
Date
12/16/2021
Drawn By
AB
Checked By
MW

Drawing No.
7
Sheet 1 of 1

APPENDIX A

Low Flow Sampling Logs

LOW FLOW SAMPLING FIELD PARAMETER MEASUREMENTS												
Project: 23-30 Borden Avenue			Site Location: Queens, NY			Well No: LMW-26			Date: 11/16/2021			
Job Number: 100766601			Weather: Clear, 40's			Sampler(s): SH						
Initial DTW (ft): -			Well Depth (ft): 14			Pump Depth (ft): 10						
Background PID (ppm): 0.00			Well PID (ppm): 0.0			Screen Interval (ft): 4-14						
Water Quality Meter: Horiba U-5000			Water Quality Meter ID: KXF7			Well Diameter (in): 1						
TIME	TEMP. °C	pH (std. Units)	ORP (mV)	COND. (mS/cm)	Turbidity (NTU)	DO (mg/L)	DTW (ft)	Q (mL/m)	COLOR?	ODOR?	NOTES	STABILIZED?
10:40	---	---	---	---	---	---	-	200	---	---	Begin Purging	---
10:45	16.38	6.55	131	1.740	23.7	0.16	-	200	Clear	NA		---
10:50	16.59	6.64	57	1.740	8.0	0.12	-	200	Clear	NA		---
10:55	16.82	6.65	23	1.730	3.5	0.05	-	200	Clear	NA		---
11:00	16.93	6.66	-7	1.730	0.6	0.00	-	200	Clear	NA		---
11:05	17.06	6.66	-25	1.730	0.0	0.00	-	200	Clear	NA		---
11:10	16.91	6.66	-17	1.720	0.0	0.37	-	200	Clear	NA		---
11:15	17.09	6.66	-31	1.730	0.0	0.00	-	200	Clear	NA		---
11:20	17.13	6.66	-37	1.730	0.0	0.00	-	200	Clear	NA		---
11:25	17.13	6.66	-41	1.730	0.0	0.00	-	200	Clear	NA		---
11:30	17.21	6.65	-43	1.730	0.0	0.00	-	200	Clear	NA		---
11:35	17.16	6.65	-45	1.730	0.0	0.00	-	200	Clear	NA	Collect Sample	Y
												#DIV/0!
												#DIV/0!
												#DIV/0!
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	+/- 3%	+/- 0.1 pH	+/- 10 mV	+/- 3%	+/- 10 NTU	+/- 10%	<0.3' drawdown					
Notes:												
Bend in PVC riser prohibited water level meter from advancing into well.												
Sample Number:		158 MW-26		Sample Time:		11:40		Sample Analyses:		VOCs, EZVI Treatability Study Analyses		
QA/QC Sample Number:		-		QA/QC Sample Time:		-		QA/QC Sample Analyses:		-		



LOW FLOW SAMPLING FIELD PARAMETER MEASUREMENTS							
Project:	23-30 Borden Avenue	Site Location:	Queens, NY	Well No:	LMW-31	Date:	11/16/2021
Job Number:	100766601	Weather:	Clear, 40's	Sampler(s):	SH		
Initial DTW (ft):	3.30	Well Depth (ft):	11.7	Pump Depth (ft):	8		
Background PID (ppm):	0.00	Well PID (ppm):	0.0	Screen Interval (ft):	2-12		
Water Quality Meter:	Horiba U-52	Water Quality Meter ID:	KXF7	Well Diameter (in):	1		

	TEMP.	pH	ORP	COND.	Turbidity	DO	DTW	Q	COLOR?	ODOR?	NOTES	STABILIZED?
TIME	°C	(std. Units)	(mV)	(mS/cm)	(NTU)	(mg/L)	(ft)	(mL/m)				
12:35	--	--	--	--	--	--			--	--	Begin Purging	--
13:10	14.53	6.64	291	0.464	124.0	5.69	3.30	200	Clear	NA		--
13:15	14.92	6.82	268	0.614	70.5	0.41	3.40	200	Clear	NA		--
13:20	14.84	6.87	248	0.591	55.3	0.07	3.40	200	Clear	NA		N
13:25	14.77	6.89	235	0.578	37.1	0.01	3.40	200	Clear	NA		N
13:30	14.71	6.90	225	0.573	30.6	0.00	3.40	200	Clear	NA		N
13:35	14.65	6.90	216	0.570	11.7	0.00	3.40	200	Clear	NA		N
13:40	14.62	6.90	208	0.568	3.5	0.00	3.40	200	Clear	NA		N
13:45	14.58	6.89	201	0.565	0.0	0.00	3.40	200	Clear	NA		N
13:50	14.52	6.89	195	0.564	0.0	0.00	3.40	200	Clear	NA		N
13:55	14.41	6.89	189	0.563	0.0	0.00	3.40	200	Clear	NA		N
14:00	14.33	6.89	185	0.563	0.0	0.00	3.40	200	Clear	NA		Y
14:05	14.26	6.89	180	0.564	0.0	0.00	3.40	200	Clear	NA		Y
14:10	14.19	6.88	176	0.564	0.0	0.00	3.40	200	Clear	NA	Collect Sample	Y
												#DIV/0!
												#DIV/0!
												#DIV/0!
												#DIV/0!
												#DIV/0!
												#DIV/0!
												#DIV/0!
												#DIV/0!
												#DIV/0!
												#DIV/0!
												#DIV/0!
	+/- 3%	+/- 0.1 pH	+/- 10 mV	+/- 3%	+/- 10 NTU	+/- 10%	<0.3' drawdown					#DIV/0!

Sample Number:	159 MW-31	Sample Time:	14:15	Sample Analyses:	VOCs, EZVI Treatability Study Analyses
QA/QC Sample Number:		QA/QC Sample Time:		QA/QC Sample Analyses:	

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APPENDIX B

Safety Data Sheets and Technical Specifications



Patented *Injection Ready* 60% SRS[®]-SD Small Droplet Emulsified Vegetable Oil (EVO) Substrate for Maximum Radius of Influence

United States Patent #RE40,448

SAFETY DATA SHEET

1. Product Identification

Synonyms: 60% Small Droplet Slow Release Substrate (SRS[®]-SD) Emulsified Vegetable Oil Substrate (EVO)

Recommended Use: Treatment of groundwater contaminated with chlorinated solvents and other anaerobically degradable compounds.

Supplier: Terra Systems, Inc.
130 Hickman Road, Suite 1
Claymont, Delaware 19703
Telephone (302) 798-9553
Fax (302) 798-9554
www.terrasystems.net

2. Hazards Identification

Emergency Overview

Caution: May cause eye irritation.

Health Rating: 1 - Slight

Flammability Rating: 1 - Slight

Reactivity Rating: 1 - Slight

Contact Rating: 1 - Slight

Protective Equipment: Goggles; Proper Gloves

Storage Color Code: Green (General Storage)

Potential Health Effects

Inhalation: Not expected to be a health hazard. If heated, may produce vapors or mists that irritate the mucous membranes and cause irritation, dizziness, and nausea. Remove to fresh air.

Ingestion: Not expected to be a health hazard via ingestion. Large doses may produce abdominal spasms or diarrhea.

Skin Contact: No adverse effects expected. May cause irritation or sensitization in sensitive individuals.

Eye Contact: May cause mild irritation, possible reddening.

Chronic Exposure: No information found.

Aggravation of Pre-existing Conditions: No information found.



3. Composition/Information on Ingredients

Ingredient	Synonyms	CAS #	Percent	Hazardous
Soy bean oil	Soya oil	8001-22-7	60%	No
Emulsifiers and proprietary nutrient package containing nitrogen, phosphorus and vitamin B ₁₂		Mixture	7.5 - 10%	No
Sodium lactate	2-hydroxypropionic acid sodium salt	72-17-3	5.5%	Yes
Water		7732-18-5	Difference	No

The emulsifiers and nutrient package mixture is a trade secret and consists of ingredients of unknown acute toxicity.

4. First Aid Measures

Inhalation:	Not expected to require first aid measures. Remove to fresh air. Get medical attention for any breathing difficulty.
Ingestion:	If large amounts were swallowed, give water to drink and get medical advice.
Skin Contact:	Not expected to require first aid measures. Wash exposed area with soap and water. Get medical advice if irritation develops.
Eye Contact:	Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

5. Fire Fighting Measures

Fire:	Flash point: >200 C (>392 F). Not considered to be a fire hazard. Isolate from heat and open flame.
Explosion:	Not considered to be an explosion hazard. Closed containers may explode if exposed to extreme heat.
Fire Extinguishing Media:	Dry chemical, foam, or carbon dioxide. Water spray may be ineffective on fire but can protect fire-fighters and cool closed containers. Use fog nozzles if water is used.
Special Information:	In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Clean-up personnel may require protective clothing. Absorb in sand, paper towels, "Oil Dry", or other inert material. Scoop up and containerize for disposal. Flush trace residues to sewer with soap and water. Containerized waste may be sent to an approved waste disposal facility.



7. Handling and Storage

Store in a cool, dry, ventilated area. Do not store in sunlight or above 32 C (90 F). Keep container tightly closed and upright when not in use to prevent leakage. Observe all warnings and precautions listed for the product. Protect against physical damage.

If container begins to bulge, open cap slowly to release carbon dioxide from biological activity on the SRS-SD and call TSI.

Containers of this material are not hazardous when empty since they do not contain vapors or harmful substances; if drum or tote is observed to bulge, keep cap off as pressurization can occur on empty container with caps in place unless container is thoroughly rinsed.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:	None established.
Ventilation System:	Not expected to require any special ventilation.
Personal Respirators (NIOSH Approved):	Not expected to require personal respirator usage.
Skin Protection:	Wear protective gloves and clean body-covering clothing.
Eye Protection:	Use chemical safety goggles and/or a full-face shield where splashing is possible. Provide readily accessible eye wash stations and safety showers.
Slips, Trips, and Falls:	Material is slippery when spilled. Clean up with sand, paper towels, "Oil Dry", or other inert material.

9. Physical and Chemical Properties

Appearance:	White liquid.
Odor:	Vegetable oil.
Solubility:	Miscible in water.
Specific Gravity (water=1):	0.95-0.98. 8.09 pounds per gallon.
pH:	6-7 (40% aqueous solution)
% Volatiles by volume @ 21C (70F):	Negligible.
Boiling Point:	≥ 100C (≥ 212F)
Melting Point:	No information found.
Flash Point (F):	No information found.
Autoignition Temperature:	No information found.
Decomposition Temperature:	No information found.
Vapor Density (Air=1):	No information found.
Vapor Pressure (mm Hg):	< 1.0 @ 20C (68F).
Evaporation Rate (BuAc=1):	No information found.
Viscosity @23 C (73 F):	213 centipoises (1.2 centipoises diluted 1:10)
Partition Coefficient (octanol/water):	No information found.



10. Stability and Reactivity

Stability:	Stable under ordinary conditions of use and storage.
Reactivity:	Not reactive under ordinary conditions.
Hazardous Decomposition Products:	Carbon dioxide and carbon monoxide may form when heated to decomposition.
Hazardous Polymerization:	Will not occur.
Incompatibilities:	Strong oxidizers, acids.
Conditions to Avoid:	Incompatibles. Isolate from heat and open flame.

11. Toxicological Information

Soybean Oil:	No information found on toxicology. It is not a carcinogen listed by IARC, NTP, NIOSH, OSHA, or ACGIH.
Emulsifier/Nutrient Mixture:	No information found on toxicology. It is not a carcinogen listed by IARC, NTP, NIOSH, OSHA, or ACGIH.
Sodium Lactate:	Oral rat LD50: 2,000 mg/kg. 100 mg caused mild irritation to rabbit eye in Draize test. This compound is not listed as a carcinogen by IARC, NTP, NIOSH, OSHA, or ACGIH.
SRS-SD:	The toxicity of the mixture has not been measured.

12. Ecological Information

Environmental Fate:	No information found.
Environmental Toxicity:	No information found.
Degradability:	This product is completely biodegradable under both aerobic and anaerobic conditions.
Soil Mobility:	This compound will move with groundwater until the adsorbed onto the soil. Degradation products may be mobile.
Bioaccumulation Potential:	No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information



OSHA STATUS: This product is not hazardous under the criteria of the Federal OSHA hazard Communication Standard 29 CFR 1910.1200. However, thermal processing and decomposition fumes from this product may be hazardous as noted in Section 10.

TSCA STATUS: No component of this product is listed on the TSCA inventory.

CERCLA (Comprehensive Response Compensation, and Liability Act): Not reportable.

SARA TITLE III (Superfund Amendments and Reauthorization Act)

Section 312 Extremely Hazardous Substances: None

Section 311/312 Hazard Categories: Non-hazardous Under Section 311/312

Section 313 Toxic Chemicals: None

RCRA STATUS: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

CALIFORNIA PROPOSITION 65: The following statement is made in order to comply with the California safe Drinking Water and Toxic Enforcement Act of 1986. The product contains no chemicals known to the State of California to cause cancer.

16. Other Information

NFPA Ratings:

Health: **1** Flammability: **1** Reactivity: **1**

Date Prepared:

September 11, 2019

Revision Information:

SDS Section(s) changed since last revision of document include: Updated Section 3 Composition/Information on Ingredients.

Disclaimer:

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DAMAGES RESULTING FROM USE OF OR RELIANCE
UPON THIS INFORMATION.

Prepared by:
Phone Number:

Terra Systems, Inc.
(302) 798-9553 (U.S.A.)



NutriPlusTM

Nutrient Package

SAFETY DATA SHEET

Effective Date: 04/01/2021

1. Product Identification

Synonyms: Nutrient Package

Recommended Use: Treatment of groundwater contaminated with chlorinated solvents and other anaerobically degradable compounds.

Supplier: Terra Systems, Inc.
130 Hickman Road, Suite 1
Claymont, Delaware 19703
Telephone (302) 798-9553
Fax (302) 798-9554
www.terrasystems.net

2. Hazards Identification

Emergency Overview

Caution: May cause eye irritation.

Health Rating: 1 - Slight

Flammability Rating: 0 - None

Reactivity Rating: 0 - None

Contact Rating: 1 - Slight

Protective Equipment: Goggles; Proper Gloves

Storage Color Code: Orange (General Storage)

Potential Health Effects

Inhalation: Not expected to be a health hazard.

Ingestion: Not expected to be a health hazard via ingestion.

Skin Contact: Possible irritant and allergen.

Eye Contact: May cause irritation, possible reddening.

Chronic Exposure: No information found. No adverse effects expected.

Aggravation of Pre-existing Conditions: No information found.

130 Hickman Road – Suite 1 – Claymont – Delaware – 19703
For More Information Call Michael Free at 302-798-9553 or Email: mfree@terrasystems.net





3. Composition/Information on Ingredients

Ingredient	CAS#	Percent	Hazardous
Yeast Extract	8013-01-2	50-60	
Vitamin B ₁₂	68-19-9	<1	No
Diammonium Phosphate	7783-28-0	2.5-9	No
Water	7732-18-5	30-46.5	No

Molecular Weight: No available
Chemical Formula: Not available

4. First Aid Measures

Inhalation: Not expected to require first aid measures. Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion: If large amounts were swallowed, give water to drink and get medical advice.

Skin Contact: Not expected to require first aid measures. Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

5. Fire Fighting Measures

Fire: Not considered to be a fire hazard.

Explosion: Not considered to be an explosion hazard.

Fire Extinguishing Media: Use any means suitable for extinguishing surrounding fire.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Clean-up personnel may require protective clothing. Absorb in sand, paper towels, "Oil Dry", or other inert material. Scoop up and containerize for disposal. Flush trace residues to sewer with soap and water. Containerized waste may be sent to an approved waste disposal facility.

130 Hickman Road – Suite 1 – Claymont – Delaware – 19703
For More Information Call Michael Free at 302-798-9553 or Email: mfree@terrasystems.net





7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Avoid long storage times. Containers of this material may be hazardous when empty since they do retain product residues (vapors, liquid). Observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:	None established.
Ventilation System:	Not expected to require any special ventilation.
Personal Respirators (NIOSH Approved):	Not expected to require personal respirator usage.
Skin Protection:	Wear protective gloves and clean body-covering clothing.
Eye Protection:	Use chemical safety goggles and/or a full-face shield where splashing is possible. Provide readily accessible eye wash stations and safety showers.

9. Physical and Chemical Properties

Appearance:	Yellow, orange, or brown liquid
Odor:	Yeast
Solubility:	Partially soluble in water.
Specific Gravity (water=1):	1.22. (10.17 pounds per gallon)
pH:	5.0-8.0
% Volatiles by volume @ 21C (70F):	No information found.
Boiling Point:	105 C (221 F)
Melting Point:	No information found.
Flash Point (F):	>500 C (>932 F)
Autoignition Temperature:	No information found.
Decomposition Temperature:	No information found.
Vapor Density (Air=1):	No information found.
Vapor Pressure (mm Hg):	No information found.
Evaporation Rate (BuAc=1):	No information found.
Viscosity @23 C (73 F):	No information found.
Partition Coefficient (octanol/water):	No information found.

10. Stability and Reactivity

Stability:	Stable under ordinary conditions of use and storage.
Reactivity:	Not reactive under ordinary conditions.

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Hazardous Decomposition

Products: Carbon dioxide and carbon monoxide may form when heated to decomposition.

Hazardous Polymerization: Will not occur.

Incompatibilities: Strong oxidizers, acids

Conditions to Avoid: Incompatibles. Isolate from heat and open flame.

11. Toxicological Information

No information found.

12. Ecological Information

Environmental Fate: Mobile with water and readily biodegradable.

Environmental Toxicity: Ecological injuries are not known or expected under normal use.

Degradability: This product is completely biodegradable under both aerobic and anaerobic conditions.

Soil Mobility: This compound will move with groundwater until the adsorbed onto the soil. Degradation products may be mobile.

Bioaccumulation Potential: No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Non-hazardous - not regulated.

15. Regulatory Information

This product does not meet the definition of a hazardous material given in the U. S. Occupational Safety and Health Administration's Hazard Communication Standard.

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16. Other Information

NFPA Ratings:

Health: **1** Flammability: **0** Reactivity: **0**

Date Prepared:

April 1, 2021

Revision Information:

SDS Section(s) changed since last revision of document include: Dry yeast substituted for liquid yeast extract.

Disclaimer:

Terra Systems, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. TERRA SYSTEMS, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, TERRA SYSTEMS, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

Prepared by:

Terra Systems, Inc.

Phone Number:

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1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Ferox Target zero valent iron powder

Brand : Hepure

CAS-No. : 7439-89-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Environmental remediation, water treatment, various

1.3 Details of the supplier of the safety data sheet

Company : Hepure Technologies, Inc.
63 Main Street, Suite 203B
Flemington, NJ 08822

Telephone : 877-727-4776

1.4 Emergency telephone number

Emergency Phone # : Chemtrec 800-424-9300 CCN234339

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Not classified as hazardous

2.2 GHS Label elements, including precautionary statements

Signal Word: not applicable
Hazard Statements: not applicable
Precautionary Statements: not applicable

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS – none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula: Fe
Molecular Weight: 55.85 g/mol
CAS-No.: 7439-89-6
EC-No.: 231-096-4

Carbon:	1.5 to 2%
Sulfur:	0.1%
Silicon:	1 to 1.5%
Phosphorus	0.1%
Iron:	Balance

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

No data available

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use Class D or other metal extinguishing agent.

5.2 Special hazards arising from the substance or mixture

These materials, as coarse particles, are non-flammable and do not react with water or other materials used for extinguishing fire. Fine metal dust may pose a risk of fire or explosion if accumulated, mixed and confined with an ignition source. When handling fine particles generated from this material, avoid creating dust clouds and ignition sources. May release iron oxide fume if involved in a fire.

5.3 Advice for firefighters

Wear self-contained breathing apparatus for fire fighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Store under inert gas. Moisture sensitive. Keep in a dry place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Impermeable gloves, protective work clothing as necessary.

Respiratory Protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Form: powder
b) Odor	no data available
c) Odor Threshold	no data available
d) pH	no data available
e) Melting point/freezing point	Melting point/range: 1,535 °C (2,795 °F) - lit.
f) Initial boiling point and boiling range	2,750 °C (4,982 °F) - lit.
g) Flash point	no data available

h) Evaporation rate	no data available
i) Flammability (solid, gas)	not flammable as a coarse particle; fine metal dust may pose a risk of fire or explosion if accumulated, mixed and confined with an ignition source
j) Upper/lower flammability or explosive limits	no data available
k) Vapor pressure	no data available
l) Vapor density	no data available
m) Relative density	7.86 g/cm ³ at 25 °C (77 °F)
n) Water solubility	insoluble
o) Partition coefficient: n-octanol/water	no data
p) Auto-ignition temperature	available no
q) Decomposition temperature	data available
	no data available
r) Viscosity	no data available
s) Explosive properties	no data available
t) Oxidizing properties	no data available

9.2 Other safety information

Bulk density	2.3 gm/cm ³

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials

Acids, Oxygen, Strong oxidizing agents, Halogens, Phosphorus

10.6 Hazardous decomposition products

Other decomposition products - no data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - rat - 30,000 mg/kg

Remarks: Nutritional and Gross Metabolic: Weight loss or decreased weight

gain. Inhalation: no data available

Dermal: no data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a

carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data

available No

data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: NO4565500

Overdose of iron compounds may have a corrosive effect on the gastrointestinal mucosa and be followed by necrosis, perforation, and stricture formation. Several hours may elapse before symptoms that can include epigastric pain, diarrhea, vomiting, nausea, and hematemesis occur. After apparent recovery a person may experience metabolic acidosis, convulsions, and coma hours or days later. Further complications may develop leading to acute liver necrosis that can result in death due to hepatic coma. Long term inhalation exposure to iron (oxide fume or dust) can cause siderosis. Siderosis is considered to be a benign pneumoconiosis and does not normally cause significant physiologic impairment. Siderosis can be observed on x-rays with the lungs having a mottled appearance.

12. ECOLOGICAL INFORMATION

Non-hazardous

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Product: Dispose of in accordance with Federal, State and Local regulations.

Packaging: Dispose of in accordance with Federal, State and Local regulations.

14. TRANSPORT INFORMATION

Shipping Regulations:	Not regulated
UN Number:	N/A
UN Proper Shipping Name:	N/A
Transport Hazard Class:	N/A
Packing Group:	N/A
Marine Pollutant:	No

15. REGULATORY INFORMATION

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

CAS-No.	Revision Date
7439-89-6	

Iron, Powder

New Jersey Right To Know Components

CAS-No.	Revision Date
7439-89-6	

Iron, Powder

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information

Copyright 2016 Hepure Technologies, Inc. License granted to make unlimited paper copies for internal use only. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Hepure Technologies, Inc. and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

Version: 2.3 Revision Date: 6/23/2016



Diammonium Phosphate

SAFETY DATA SHEET

Effective Date: 01-01-2018

1. Product Identification

Synonyms: Diammonium Phosphate, Ammonium Phosphate Dibasic
Recommended Use: Treatment of groundwater contaminated with chlorinated solvents and other anaerobically degradable compounds.
Supplier: Terra Systems, Inc.
130 Hickman Road, Suite 1
Claymont, Delaware 19703
Telephone (302) 798-9553
Fax (302) 798-9554
www.terrasystems.net

2. Hazards Identification

Emergency Overview

Caution: May cause eye and skin irritation. Acute aquatic toxicity.
Health Rating: 2 - Moderate
Flammability Rating: 0 - None
Reactivity Rating: 0 - None
Contact Rating: 2 - Moderate
Protective Equipment: Goggles; Proper Gloves
Storage Color Code: Orange (General Storage)
Potential Health Effects
Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion: May be harmful if swallowed.
Skin Contact: Causes skin irritation.
Eye Contact: Causes eye irritation.
Chronic Exposure: No information found No adverse effects expected
Aggravation of Pre-existing Conditions: No information found



3. Composition/Information on Ingredients

Ingredient	CAS#	Percent	Hazardous
Diammonium Phosphate	7783-28-0	100	Yes

Molecular Weight: 132.1
Chemical Formula: (NH₄)₂PO₄

4. First Aid Measures

Inhalation: Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion: If swallowed, give water to rinse mouth and get medical advice.

Skin Contact: Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

5. Fire Fighting Measures

Fire: Not considered to be a fire hazard.

Explosion: Not considered to be an explosion hazard.

Fire Extinguishing Media: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

Hazardous Combustion Products: Hazardous decomposition products formed under fire conditions – nitrogen oxides and phosphorus oxides.

6. Accidental Release Measures

Clean-up personnel should wear protective clothing and gloves. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Scoop up and containerize for disposal. Discharge into environment should be avoided. Containerized waste may be sent to an approved waste disposal facility.



7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Avoid long storage times. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide adequate exhaust ventilation where dust is formed. Containers of this material may be hazardous when empty since they do retain product residues (vapors, liquid). Observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:	None established.
Ventilation System:	Not expected to require any special ventilation.
Personal Respirators (NIOSH Approved):	For nuisance exposures, use type P95 particle respirator. For higher level protection use type OV/AG/P99 respirator cartridges.
Skin Protection:	Wear protective nitrile rubber gloves (at least 0.11 mm thick) and clean impervious body-covering clothing.
Eye Protection:	Use chemical safety goggles and/or a full face shield where splashing is possible. Provide readily accessible eye wash stations and safety showers.

9. Physical and Chemical Properties

Appearance:	White crystalline.
Odor:	Ammonia.
Solubility:	About 132 g/L at 20 C (68 F)
Specific Gravity (water=1):	1.62 g/cm ³
pH:	7.5-9.0 at 132 g/L at 25 C (77 F)
% Volatiles by volume @ 21C (70F):	No information found.
Boiling Point:	No data available
Melting Point:	155 C (311 F)
Flash Point (F):	No information found.
Autoignition Temperature:	No information found
Decomposition Temperature:	No information found.
Vapor Density (Air=1):	No information found.
Vapor Pressure (mm Hg):	No information found.
Evaporation Rate (BuAc=1):	No information found.
Viscosity @23 C (73 F):	No information found.
Partition Coefficient (octanol/water):	No information found



10. Stability and Reactivity

Stability:	Stable under ordinary conditions of use and storage.
Reactivity:	Not reactive under ordinary conditions.
Hazardous Decomposition Products:	Nitrogen oxides and oxides of phosphorus may form when heated to decomposition.
Hazardous Polymerization:	Will not occur.
Incompatibilities:	Avoid strong oxidizing agents, strong acids, strong bases, and magnesium.
Conditions to Avoid:	Incompatibles. Isolate from heat and open flame.

11. Toxicological Information

Acute Toxicity:	Oral LD50 rat 6,500 mg/lg Inhalation LC50 – no data available Dermal LD50 – rabbit 7,950 mg/kg
Chronic Toxicity:	Carcinogenicity – no component of this product present at levels greater than 0.1% is identified as probable, possible, or confirmed human carcinogen by IARC, ACGIH, NTP, or OSHA. Reproductive toxicity – no data available. Teratogenicity – no data available.

12. Ecological Information

Environmental Fate:	Mobile with water and biodegradable.
Environmental Toxicity:	Toxic to fish. LC50 <i>Oncorhynchus mykiss</i> (rainbow trout) 26.5 mg/L – 96 hr. LC50 <i>Pimephales promelas</i> (fathead minnow) 33 mg/L -96 hr.
Degradability:	No information is available.
Soil Mobility:	No information is available.
Bioaccumulation Potential:	No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use, or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.



14. Transport Information

Non-hazardous - not regulated.

15. Regulatory Information

This product is considered an irritant by the U. S. Occupational Safety and Health Administration's Hazard Communication Standard.

16. Other Information

NFPA Ratings:

Health: **2** Flammability: **0** Reactivity: **0**

Date Prepared:

January 1, 2018

Revision Information:

SDS Section(s) changed since last revision of document include: None.

Disclaimer:

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Prepared by:

Terra Systems, Inc.

Phone Number:

(302) 798-9553 (U.S.A.)



TERRA SYSTEMS, INC DECHLORINATING BIOAUGMENTATION CULTURE (TSI-DC) SAFETY DATA SHEET

1. Product Identification

Synonyms: *Dehalococcoides* or DHC Microbial Consortium (TSI-DC)
Recommended Use: Bioremediation of groundwater and soil contaminated with chlorinated solvents such as tetrachloroethene and trichloroethene.
Supplier: Terra Systems, Inc.
130 Hickman Road, Suite 1
Claymont, Delaware 19703
Telephone (302) 798-9553
Fax (302) 798-9554
www.terrasystems.net

2. Hazards Identification

The available data indicates no known hazards associated with exposure to this product. Nevertheless, individuals who are allergic to enzymes or other related proteins should avoid exposure and handling. Health effects associated with exposure to similar organisms are listed below.

Emergency Overview

Caution: May cause eye irritation or discomfort if ingested or inhaled or allergic reaction to sensitive individuals.

Health Rating: 1 - Slight

Flammability Rating: 0 - None

Reactivity Rating: 0 - None

Contact Rating: 1 - Slight

Protective Equipment: Goggles; Proper Gloves

Storage Color Code: Green (General Storage)

Potential Health Effects

Inhalation: Not expected to be a health hazard. Hypersensitive individuals may experience breathing difficulties after inhalation of aerosols.

Ingestion: Not expected to be a health hazard via ingestion. Ingestion of large quantities may result in abdominal discomfort including nausea, vomiting, cramps, diarrhea, and fever.

Skin Contact: No adverse effects expected. May cause irritation or sensitization in sensitive individuals upon prolonged contact.

Eye Contact: May cause mild irritation, possible reddening unless immediately rinsed.



Chronic Exposure: No information found.
Aggravation of Pre-existing Conditions: No information found.

3. Composition/Information on Ingredients

Ingredient	Synonyms	CAS #	Percent	Hazardous
Non-hazardous ingredients	DHC	Not applicable	100%	No

4. First Aid Measures

Inhalation: Not expected to require first aid measures. Remove to fresh air. Get medical attention for any breathing difficulty or if allergic symptoms develop.

Ingestion: Thoroughly rinse mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Get immediate medical attention. Never give anything by mouth to an unconscious or convulsing person.

Skin Contact: Not expected to require first aid measures. Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

Note to Physicians: All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this material may have occurred.

5. Fire Fighting Measures

Fire: Non-flammable. Flash point and flammable limits are not available.

Explosion: Not considered to be an explosion hazard.

Fire Extinguishing Media: Dry chemical, foam, carbon dioxide, or water.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Clean-up personnel may require protective clothing and avoid skin contact. Absorb in sand, paper towels, or other inert material. Scoop up and containerize for disposal. Flush trace residues to sewer with soap and water. Containerized waste may be sent to an approved waste disposal facility. After clean-up, disinfect all cleaning materials and storage containers that come in contact with the spilled liquid.



7. Handling and Storage

Avoid breathing breathe aerosol. Avoid contact with skin. Use personal protective equipment recommended in Section 8. Keep containers tightly closed in a cool, well-ventilated area. The DHC microbial consortium (TSI-DC) can be supplied in stainless steel kegs designed for maximum working pressure of 130 psi and equipped with pressure relief valves. The kegs are pressurized with nitrogen gas up to the pressure of 15 psi. Do not exceed pressure of 15 psi during transfer of DHC microbial consortium (TSI-DC) from kegs. Don't open keg if content of the keg is under pressure. DHC microbial consortium (TSI-DC) may be stored for up to 3 weeks at temperature 2-4°C without aeration. Avoid freezing.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:	None established.
Ventilation System:	Not expected to require any special ventilation. Provide adequate ventilation to remove odors.
Personal Respirators (NIOSH Approved):	Not expected to require personal respirator usage. If aerosols might be generated, use N95 respirator.
Skin Protection:	Wear protective rubber, nitrile, or vinyl gloves and clean body-covering clothing.
Eye Protection:	Use chemical safety goggles and/or a full face shield where splashing is possible. Provide readily accessible eye wash stations and safety showers.

9. Physical and Chemical Properties

Appearance:	Light greenish, murky liquid.
Odor:	Musty.
Solubility:	Soluble in water.
Specific Gravity (water=1):	1.0. 8.34 pounds per gallon.
pH:	6-8
% Volatiles by volume	
@ 21C (70F):	Negligible.
Boiling Point:	100C (212F)
Melting Point:	0C (32F)
Flash Point (F):	No information found.
Autoignition Temperature:	No information found.
Decomposition Temperature:	No information found.
Vapor Density (Air=1):	No information found.
Vapor Pressure (mm Hg):	24 mm @ 25C (77F).
Evaporation Rate (BuAc=1):	No information found.
Viscosity @23 C (73 F):	1 centipoises



**Partition Coefficient
(octanol/water):**

No information found.

10. Stability and Reactivity

Stability: Stable under ordinary conditions of use and storage.

Reactivity: Not reactive under ordinary conditions.

Hazardous Decomposition

Products: None.

Hazardous Polymerization: Will not occur.

Incompatibilities: Strong oxidizers, acids, water reactive materials.

Conditions to Avoid: Incompatibles. Isolate from heat and open flame.

11. Toxicological Information

TSI-DC No information found on toxicology. It is not a carcinogen listed by IARC, NTP, NIOSH, OSHA, or ACGIH. It has tested negative for pathogenic microorganisms such as *Bacillus cereus*, *Listeria monocytogens*, *Salmonella* sp., *Pseudomonas* sp., fecal coliform, total coliform, yeast, and mold.

12. Ecological Information

Environmental Fate: No information found.

Environmental Toxicity: No information found.

Degradability: This product is completely biodegradable under both aerobic and anaerobic conditions.

Soil Mobility: This compound will move with groundwater until the adsorbed onto the soil.

Bioaccumulation Potential: No information found.

13. Disposal Considerations

Waste Disposal Method: No special disposal methods are required. The material is compatible with all known biological treatment methods. To reduce odors and permanently inactivate microorganisms, mix 100 parts (by volume) of TSI-DC consortium with 1 part (by volume) of bleach. Dispose of in accordance with local, state and federal regulations.

14. Transport Information

DOT Classification: N/A

Labeling: NA

Shipping Name: Not regulated

15. Regulatory Information

OSHA STATUS: This product is not hazardous under the criteria of the Federal OSHA hazard Communication Standard 29 CFR 1910.1200.



TSCA STATUS: No component of this product is listed on the TSCA inventory.
CERCLA (Comprehensive Response Compensation, and Liability Act): Not reportable.

SARA TITLE III (Superfund Amendments and Reauthorization Act)
Section 312 Extremely Hazardous Substances: None
Section 311/312 Hazard Categories: Non-hazardous Under Section 311/312
Section 313 Toxic Chemicals: None

RCRA STATUS: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

CALIFORNIA PROPOSITION 65: The following statement is made in order to comply with the California safe Drinking Water and Toxic Enforcement Act of 1986. The product contains no chemicals known to the State of California to cause cancer.

16. Other Information

NFPA Ratings:	Health: 1 Flammability: 0 Reactivity: 0
Date Prepared:	March 26, 2014
Revision Information:	SDS Section(s) changed since last revision of document include: None.
Disclaimer:	Terra Systems, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. TERRA SYSTEMS, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, TERRA SYSTEMS, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.
Prepared by:	Terra Systems, Inc.
Phone Number:	(302) 798-9553 (U.S.A.)

60% SRS[®]-SD Small Droplet Emulsified Vegetable Oil (EVO) Substrate for Maximum Radius of Influence United States Patent #RE40,448

The anaerobic bioremediation process uses native or introduced microorganisms (*Dehalococcoides* or *Dehalogenimonas*) to degrade chlorinated solvents such as tetrachloroethene (PCE) and trichloroethene (TCE) to innocuous end products including ethene and ethane. Terra Systems patented **SRS[®]-SD** Small Droplet Emulsified Vegetable Oil Substrate includes a **nonionic emulsifier** (does not have a charge), which doesn't stick to soil particles and is specifically designed when ease of injection and maximum radius of influence in the formation is key to making contact with the contaminants of concern (COC) and bacteria. It is added to the groundwater to rapidly generate reducing conditions and provide the necessary carbon and hydrogen to support biodegradation of the chlorinated solvents.

Table I: SRS[®]-SD Small Droplet Emulsified Vegetable Oil Substrate Specifications

Ingredient	Percent by Weight	Description	Benefit
Food Grade U.S. Grown Soybean Oil	60%	Terra Systems operates its own state-of-the-art manufacturing facility.	Long lasting slow release source of carbon and hydrogen, consistent product quality, uniform droplet size, neutral pH, QA/QC lab on floor to check product before shipment.
Food Grade Soluble Substrate - Sodium Lactate, Potassium Lactate or Glycerin	4-6%	Rapidly biodegradable soluble substrate	Fast release source of carbon and hydrogen to rapidly generate anaerobic conditions
Proprietary Food Grade Nutrients	<1%	Proprietary organic and inorganic nutrients such as yeast extract, nitrogen and phosphorus.	Nutrients have been demonstrated to support the growth of the anaerobic microbial population.
Proprietary Food Grade Emulsifiers and Preservatives	7.5%	Proprietary nonionic emulsifier	Ease of injection and maximum radius of influence due to small droplet size and nonionic emulsifier in moderate to fine sand, silt and clay aquifers
Vitamin B ₁₂	<1%	250 µg/L of Vitamin B ₁₂	He et al. 2007 demonstrated Vitamin B ₁₂ to be an important micronutrient to enhance dechlorination activity with 25 µg/L providing maximum stimulation
Median Oil Droplet Size (microns)	NA	0.6 µm	Maximum radius of influence due to small droplet size and nonionic emulsifier in moderate to fine sand, silt and clay aquifers
pH	6.5 - 7	6.5 - 7	Optimum microbial activity
Fermentable Organic Matter (wt%)	72.5%		



Application: Terra Systems **patented**, nutrient enriched, proven slow release SRS[®]-SD **small droplet** emulsified vegetable oil substrate with a **nonionic emulsifier** is used when a long-lasting carbon substrate is desired that provides maximum radius of influence in moderate to fine sand, silt and clay aquifers, which increases the distance between injection points and reduces the frequency of reinjection. The groundwater flow-rate is typically less than 180 feet/year. SRS[®]-SD does not stick to soil particles and is specifically designed when radius of influence in the formation is key to making contact with the COC and dechlorinating bacteria.

Customers: SRS[®]-SD is used extensively by consultants working with current and former drycleaners, semiconductor plants and private firms and the Air Force, DOD, Navy, and EPA to cost effectively remediate chlorinated solvent sites. SRS[®]-SD releases bio-available hydrogen over a period of 3 to 5 years thus enhancing the long-term anaerobic biodegradation of the chlorinated solvents and reducing the frequency of reinjection.

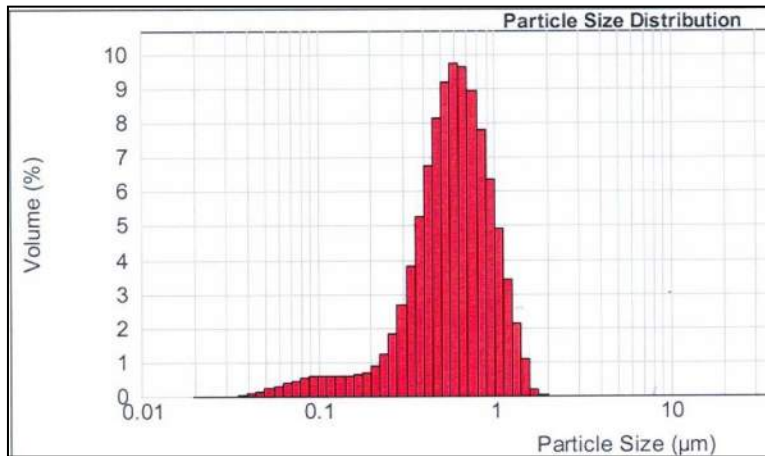
Manufactured vs. Field Emulsion

In the early days of in-situ bioremediation when Terra Systems first patented the technology, it was common to bring the water, emulsifiers, oil, and other ingredients to the site and using trash or other pumps to mix the ingredients together to form an emulsion. It soon became apparent that poor emulsion consistency and a broad range of droplet sizes resulted in inadequate and uneven distribution when injected. This resulted in higher long-term costs due to higher reinjection frequency and higher substrate volumes to adequately make contact with the COC.

Don't be "*penny wise and pound foolish*".

Consider:

- ✓ The labor and equipment time and cost of mixing in the field.
 - ✓ The need to mix the nutrients and Vitamin B₁₂ longer to achieve consistency.
 - ✓ The cost of inadequate distribution due to droplet size and emulsion inconsistency
 - ✓ The inability to accurately determine if you have 100% emulsification.
 - ✓ The lack of QA/QC in the field
-
- Terra Systems owns and operates a state of the art US based manufacturing plant with an in-house quality control laboratory for strict quality assurance of the emulsion, droplet size and pH.
 - SRS[®]-SD arrives at the site "***injection ready***" with all the ingredients – Vitamin B₁₂, proprietary nutrients, sodium or potassium lactate and anionic emulsifier(s) already blended together.
 - At the PM's request Terra Systems will blend 2-6 g/L of sodium bicarbonate into the SRS[®]-SD during manufacturing to counter the acids produced during the fermentation process in the aquifer. This is especially beneficial for marginal pH aquifers of pH 5 – 6.



A Digital Microscope with proprietary **“Droplet Size Calculation Software”** allows us to calculate the **“mean”** droplet size for each batch of SRS®-SD before transferring to a bucket, drum, tote or tanker for shipment to the customer

- SRS®-SD optimizes the naturally occurring biodegradation system by supplying the rate limiting factor (in this case hydrogen) in the degradation of CVOC’s, certain pesticides/herbicides, perchlorate, and immobilization of metals (hexavalent chromium, molybdenum, selenium, and some radionuclides).
- The **small droplet size** of **0.6 µm** combined with the **neutral surface charge** on the droplets results in ease of injection for the driller and higher radius of influence in the subsurface.
- Terra Systems holds United States Patent #**RE40,448** for the use of emulsified vegetable oil for remediation of chlorinated solvents.
- The soy bean oil is grown in the United States and provides a **slow release** biodegradable carbon source, which promotes long-term biological activity.
- SRS®-SD arrives at the site *“injection ready”* with **biostimulating** Vitamin B₁₂, which He et al. 2007 demonstrated is an important micronutrient to enhance dechlorination activity.
- SRS®-SD contains proprietary organic and inorganic nutrients such as yeast extract, nitrogen, and phosphorus, which have been demonstrated to support the growth of the anaerobic microbial population.
- SRS®-SD arrives at the site with **4 - 6%** quick release biodegradable substrate such as sodium lactate, potassium lactate or glycerin, which helps to *“jump start”* bacterial growth.
- SRS®-SD emulsified vegetable oil substrate has been validated by the Florida DEP, California Water Board and others.
- SRS®-SD contains only non-toxic food grade materials, which results in green, sustainable remediation.

Packaging: Terra Systems patented SRS®-SD can be shipped in 5-gallon buckets, 55-gallon drums, 275-gallon IBC totes, or bulk tankers.



If the *Dehalococcoides* are not present or are in small numbers, Terra Systems **TSI DC®** Bioaugmentation Culture can also be injected.



Terra Systems NutriPlus™ a Proprietary Nutrient Package For Aquifer Remediation and Conditioning United States Patent #RE40,448

Emulsified Vegetable Oil Substrates, lactate and other carbon substrates are added to the groundwater to rapidly generate reducing conditions and provide the necessary carbon and hydrogen to support native or introduced microorganisms (*Dehalococcoides*) for the biodegradation of chlorinated solvents such as tetrachloroethene (PCE) and trichloroethene (TCE) to innocuous end products including ethene and ethane.

Key Communication Points

- NutriPlus™ is a standalone package that includes nutrients and Vitamin B₁₂, a micronutrient, which has been statistically demonstrated to support biodegradation of chlorinated solvents with soluble substrates like lactate and emulsified vegetable oil (He et al 2007 and Harkness et al 2012).
- NutriPlus™ is an ideal supplement for fast-track projects when demonstrating short-term results are critical.
- NutriPlus™ can be added to other carbon substrates like lactate, molasses, and emulsified vegetable oil substrates to enhance in-situ bioremediation.

Table I: NutriPlus™ Specifications

Ingredient	Percent	Benefit
Liquid Yeast Extract	97.49	Liquid yeast extract provides nitrogen and phosphorus for enhanced in-situ bioremediation.
Vitamin B ₁₂	0.01	He et al. 2007 demonstrated that VB ₁₂ is an important micronutrient to enhance dechlorination activity.
DAP	2.5	Diammonium phosphate provides additional nitrogen and phosphorus for enhanced in-situ bioremediation.
Total		

Technical References for the benefits of using a nutrient package for in-situ bioremediation.

He, J., V. F. Holmes, P. K. H. Lee, and L. Alvarez-Cohen. 2007. Influence of Vitamin B₁₂ and cocultures on the growth of *Dehalococcoides* isolates in defined medium. *Appl. Environ. Microbiol.* 73(9):2847-2853.

Harkness, M., A. Fisher, M. D. Lee, E. E. Mack, J. A. Payne, S. Dworatzek, J. Roberts, C. Acheson, R. Herrmann, and A. Possolo. 2012. Use of statistical tools to evaluate the reductive dechlorination of high levels of TCE in microcosm studies. *Journal of Contaminant Hydrology* 131(1-4):100-118.



TSI DC *Dehalococcoides mccartyi* Bioaugmentation Culture®

Containing $>1 \times 10^{11}$ *Dehalococcoides* cells/L

Terra Systems TSI DC *Dehalococcoides mccartyi* Bioaugmentation Culture® is added to the groundwater at sites where the native microorganisms of *Dehalococcoides* are not present, are not in sufficient quantity, where the native population does not express all of the required functional genes for TCE and vinyl chloride reduction, or when the client wants to decrease the remediation time frame for the biodegradation of chlorinated solvents such as tetrachloroethene (PCE) and trichloroethene (TCE) to innocuous end products including ethene and ethane.

Key Communication Points

- TSI DC *Dehalococcoides mccartyi* Bioaugmentation Culture® is an enriched natural bacteria culture that contains *Dehalococcoides* species for bioaugmentation.
- TSI DC® contains $>1 \times 10^{11}$ *Dehalococcoides* cells/L
- This culture dechlorinates tetrachloroethene (PCE) and trichloroethene (TCE) to the non-toxic product ethene.
- The culture also biodegrades 1,1,1-trichloroethane to 1,1-dichloroethene, 1,1-dichloroethane, and chloroethane.
- It also can biodegrade carbon tetrachloride and chloroform to methylene chloride and innocuous products.
- It can be used at sites where bacteria capable of complete reductive dechlorination are not present or there is a need to decrease the remediation time frame. It is estimated that *Dehalococcoides* are not present in 10 to 40 percent of chlorinated solvent contaminated sites.
- **Key Benefits of TSI DC *Dehalococcoides mccartyi* Bioaugmentation Culture®**
 - The TSI-DC® Bioaugmentation Culture has been proven to be effective with a growing body of laboratory and field data demonstrating that the *Dehalococcoides* group of microorganisms is primarily responsible for the complete dechlorination of PCE and TCE to ethene. Some *Dehalogenimonas* species can also biodegrade PCE and TCE.
 - At sites where *Dehalococcoides* microorganisms are not present or are found at low numbers, the process will often "stall" at cis-1,2-dichloroethene (cDCE). Low pH or insufficient substrate can also contribute to the cDCE stall.



- The TSI-DC[®] Bioaugmentation Culture will promote the complete dechlorination of PCE or TCE.
- The TSI-DC[®] Bioaugmentation Culture contains greater than 1×10^{11} *Dehalococcoides*/L.

Terra Systems QA/QC

Terra Systems owns and operates a state-of-the-art US based "just-in-time" manufacturing plant with an in-house quality control laboratory for strict quality assurance of our products. With every shipment, we include a QA/QC sheet for the actual batch that the customer receives. Included are the date manufactured, batch#, DHC concentration (cells/L), PCE dechlorination activity and cDCE dechlorination activity.

Manufacturing Quality Control Checklist for TSI DC *Dehalococcoides mccartyi* Bioaugmentation Culture[®]

I. Product Information

Parameter	Value
Product manufactured	TSI DC <i>Dehalococcoides mccartyi</i> Bioaugmentation Culture [®]
Date manufactured	07/16/2019
Batch#	805-19
Customer packaging	Two (2) 19 L Kegs
Customer	Navarro Research and Engineering, Inc.
Volume of Culture	76 L concentrated 2X to fit into (2) 19 L Kegs
Date shipped	8/19/2019
Date delivered	8/21/2019
Site location	Largo, FL.

II. Ingredients Information

Test	Results	Acceptable Range	Date	Method
DHC content of Pre-concentrated culture (copies/L)	>1E11	1E11	07/25/2019	qPCR
PCE dechlorination activity, mg/h per gram of dry weight	98	50	08/13/2019	Bottle Assay
cDCE dechlorination activity, mg/h per gram of dry weight	61	50	08/13/2019	Bottle Assay

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August 19th, 2019 |

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The TSI-DC[®] Bioaugmentation Culture is cost effective and is typically a minor component of the total remediation project cost. At sites where the *Dehalococcoides* is present, but at low numbers or poorly distributed, bioaugmentation can be used to reduce the treatment time. Bioaugmentation can also reduce the time required to grow the *Dehalococcoides* population to effective cell densities. Therefore, future costs can be reduced.

- The TSI-DC[®] Bioaugmentation Culture works with all commonly used electron donors.
- The TSI-DC[®] Bioaugmentation Culture is not genetically modified or engineered.
- The TSI-DC[®] Bioaugmentation Culture is certified to be free of known human pathogens.
- Each purchase comes with free technical phone support from an experienced Terra Systems microbiologist.
- The TSI-DC[®] Bioaugmentation Culture has rigorous quality control procedures in place to ensure that each shipment is of the highest quality, stable, safe, effective and free of chlorinated volatile organic compounds.
- The TSI-DC[®] Bioaugmentation Culture is shipped overnight in specially designed stainless-steel containers that prevent exposure to air and are safe & easy to handle.
- A senior level microbiologist is also available to be on-site to support the successful application at \$1,200 per day plus travel expenses



APPENDIX C

Treatability Study Data

Appendix C1

Treatability Study Setup

Enhanced ZVI Injection Remedial Design

23-30 Borden Avenue Development

Queens, New York

Langan Project No.: 100766601

January 2022

Treatment Jar Number	Treatment Jar Description	Added Water	Reagents																					
			Sodium Azide		SRS		Additional SRS			Revised SRS Dosage		ZVI			Revised ZVI Dosage		Additional ZVI			Yeast Extract (NutriPlus)		SDC-9		
		L	mg/L	g	g/kg	g/L	mL	g/kg	g/L	mL	g/kg	g/L	g	g/kg	g/L	g	g/kg	g/L	g	mg/L	mL	cells/mL	mL	
Vinyl Chloride Treatment Test																								
VC1	VC Control	2	3000	6	-	-	-						-	-	-			-	-	-	-	-	-	
VC2	VC Treatment	2	-	-	1.25	9.0	18.5	1.6	11.8	20.0	2.9	20.8	0.5	3.6	7.2	2.5	18.0	2.0	14.4	23.6	200	0.7	5.00E+07	1.0
1,1,1-TCA Treatment Test																								
TCA1	TCA Control	2	3000	6	-	-	-						-	-	-			-	-	-	-	-	-	
TCA2	TCA Treatment	2	-	-	2.8	20.2	41.5	3.3	24	40.0	6.1	43.8	1.2	8.6	17.3	6.0	43.2	4.8	34.6	56.7	200	0.7	5.00E+07	1.0

Notes:

L - liter

mg - milligram

g - gram

kg - kilogram

mL - milliliter

cm³ - cubic centimeter

1. g/L concentration is based on field pore volume assuming 25% porosity and soil density of 1.8 g/cm³.
2. SRS, ZVI and NutriPlus were blended together in a container with little headspace before transferring to treatment jars using a syringe with luer lock.
3. SDC-9 was directly added to treatment jars using a syringe with luer lock.
4. Jars were setup on 11/22/2021. Additional SRS and ZVI was added to treatment jars on 12/20/2021 (Week 4)
5. SRS, ZVI, and NutriPlus were obtained from Terra Systems, LLC in Delaware.

Appendix C2
Water Quality & Geochemical Parameters

Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022

Sample ID	pH	ORP	Nitrate	Sulfate
	S.U.	mV	mg/L	mg/L
MW-26 Sample	6.63	-	0	195
MW-31 Sample	6.81	-	0.8	62
VC Control	7.04	192	-	-
VC Treated	6.25	-104	-	-
TCA Control	7.28	199	-	-
TCA Treated	5.8	-264	-	-

Notes:

S.U. - standard units

mV - millivolts

mg/L - milligrams per liter

1. All analyses were conducted at Langan's Treatability Facility at NJIT.
2. Nitrate and sulfate analyses were conducted using the HACH meter on 22 December 2021 (Week 4).
3. pH and ORP in the control and treatment jars were taken on 13 January 2022 (Week 7).

Appendix C3
Treatability Study Results Summary
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022

TCA Treatment Test				
Day	0	7	14	43
Date	11/22/2021	11/29/2021	12/6/2021	1/4/2022
Volume (L)	2.0	1.9	1.8	1.6
TCA Control				
Concentration (µg/L)	399.0	349.0	267.0	299.0
Total Moles (µmol)	6.0	4.9	3.5	3.7
TCA Treatment				
Concentration (µg/L)	143	291	340	1
Total Moles (µmol)	2.1	4.1	4.5	0.01

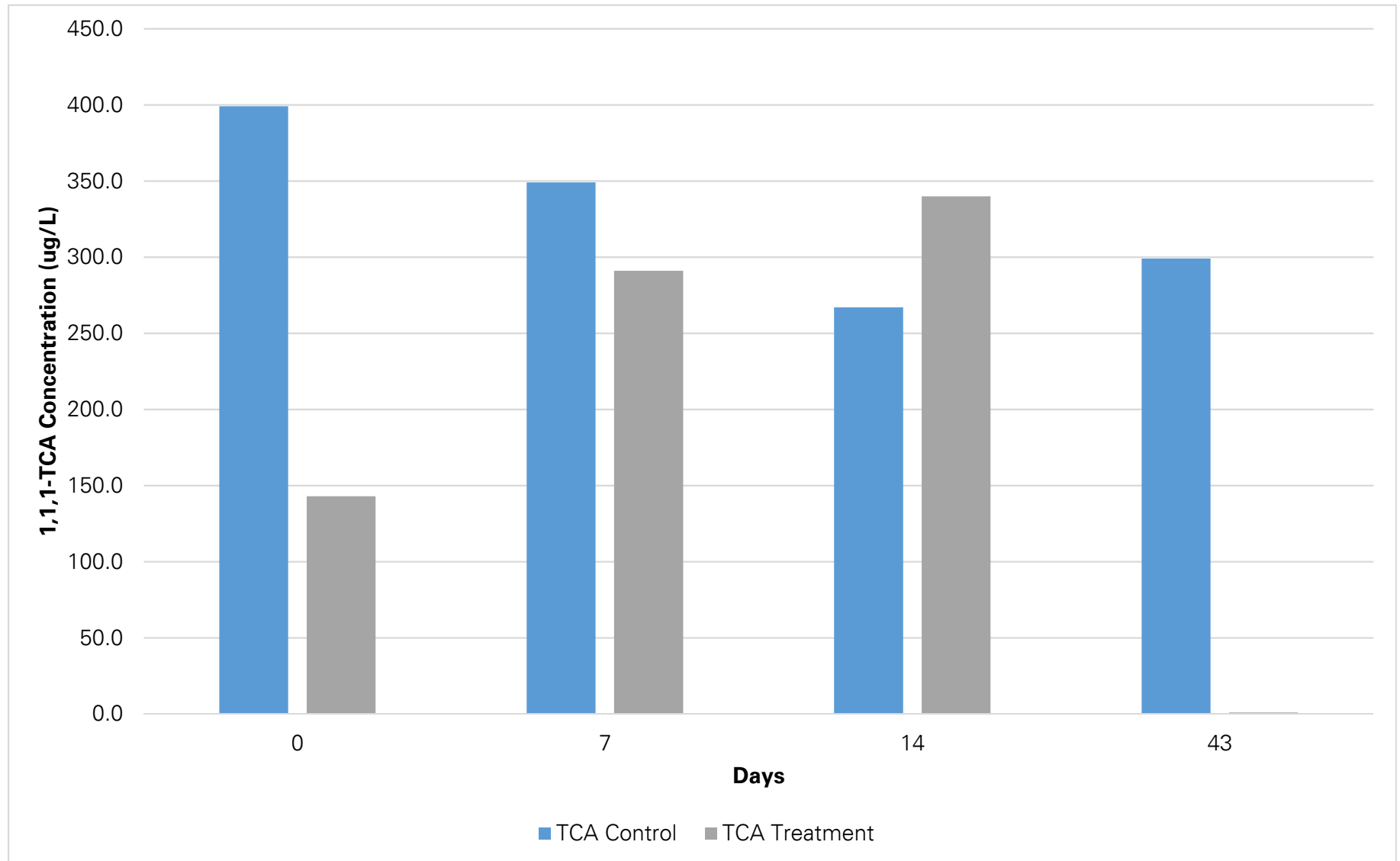
Vinyl Chloride Treatment Test				
Day	0	7	14	43
Date	11/22/2021	11/29/2021	12/6/2021	1/4/2022
Volume (L)	2.0	1.9	1.8	1.6
VC Control				
DCE Concentration (µg/L)	237	250	240	254
DCE Total Moles (µmol)	4.9	4.8	4.4	4.3
VC Concentration (µg/L)	381	394	417	311
VC Total Moles (µmol)	12.2	11.9	11.7	8.2
VC Treatment				
DCE Concentration (µg/L)	247	310	223	155
DCE Total Moles (µmol)	3.7	4.4	2.9	1.9
VC Concentration (µg/L)	542	558	430	261
VC Total Moles (µmol)	8.1	7.9	5.7	3.2

Notes:

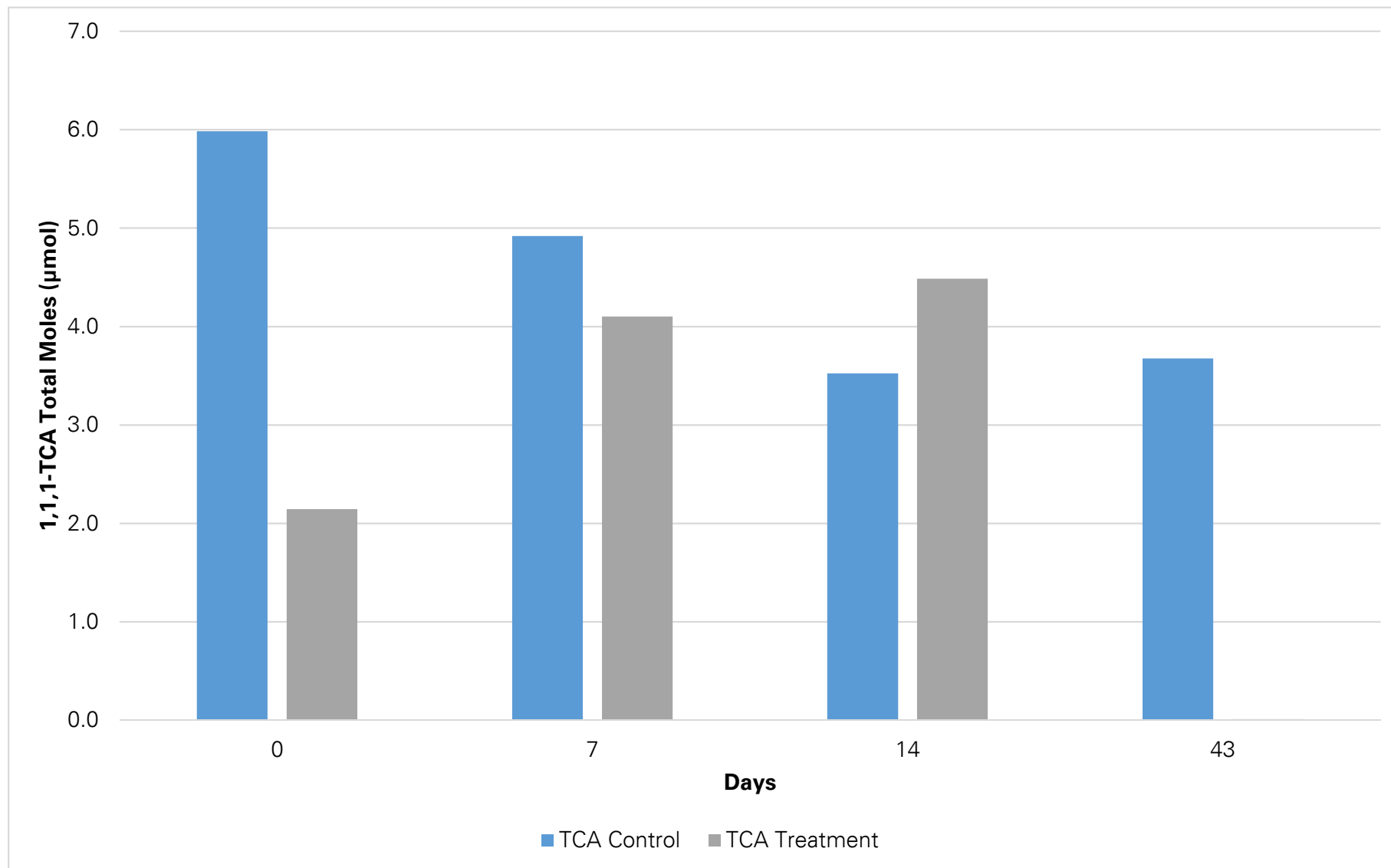
µg/L - microgram per liter

µmol - micro moles

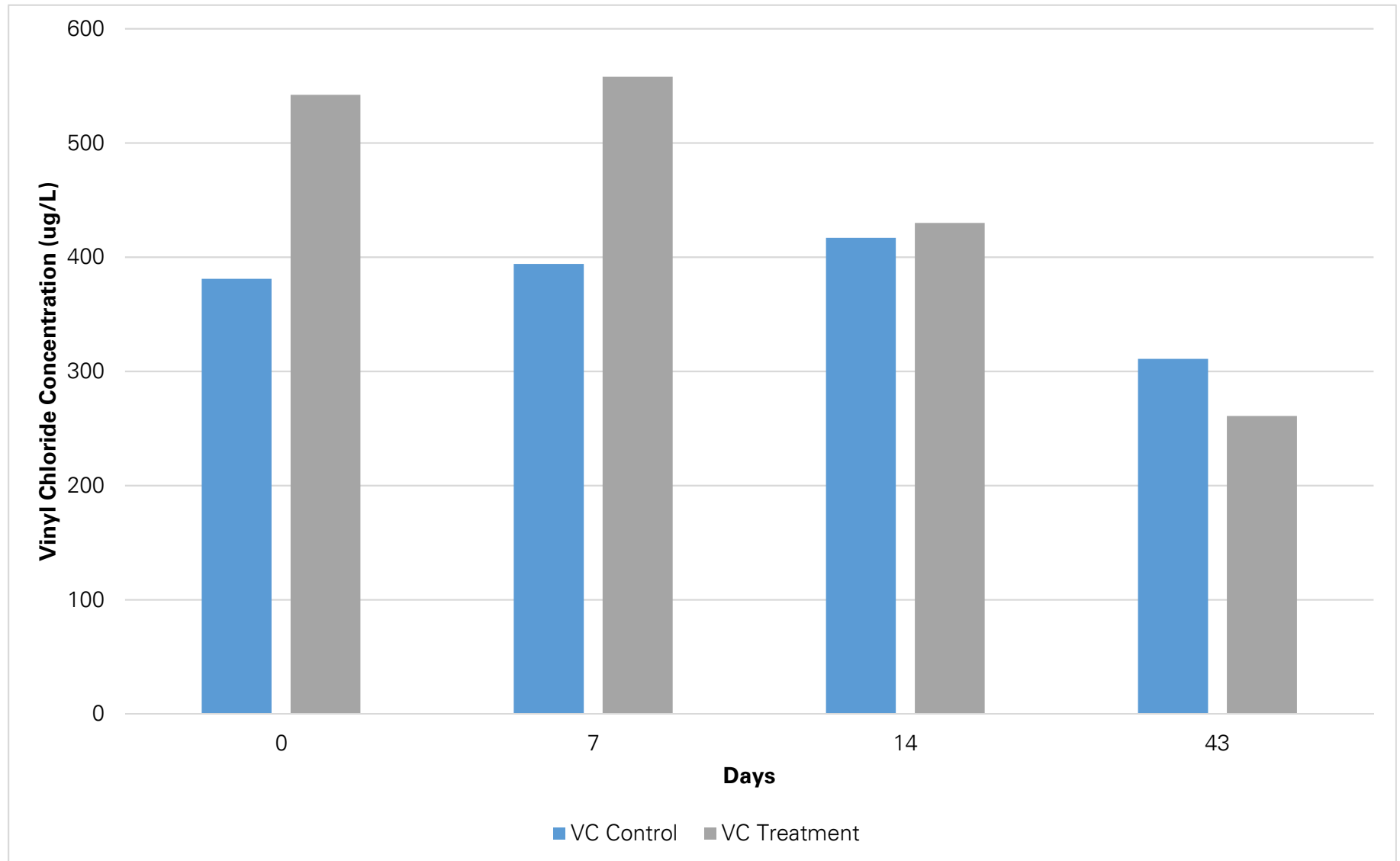
Appendix C3
1,1,1-TCA Concentration
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022



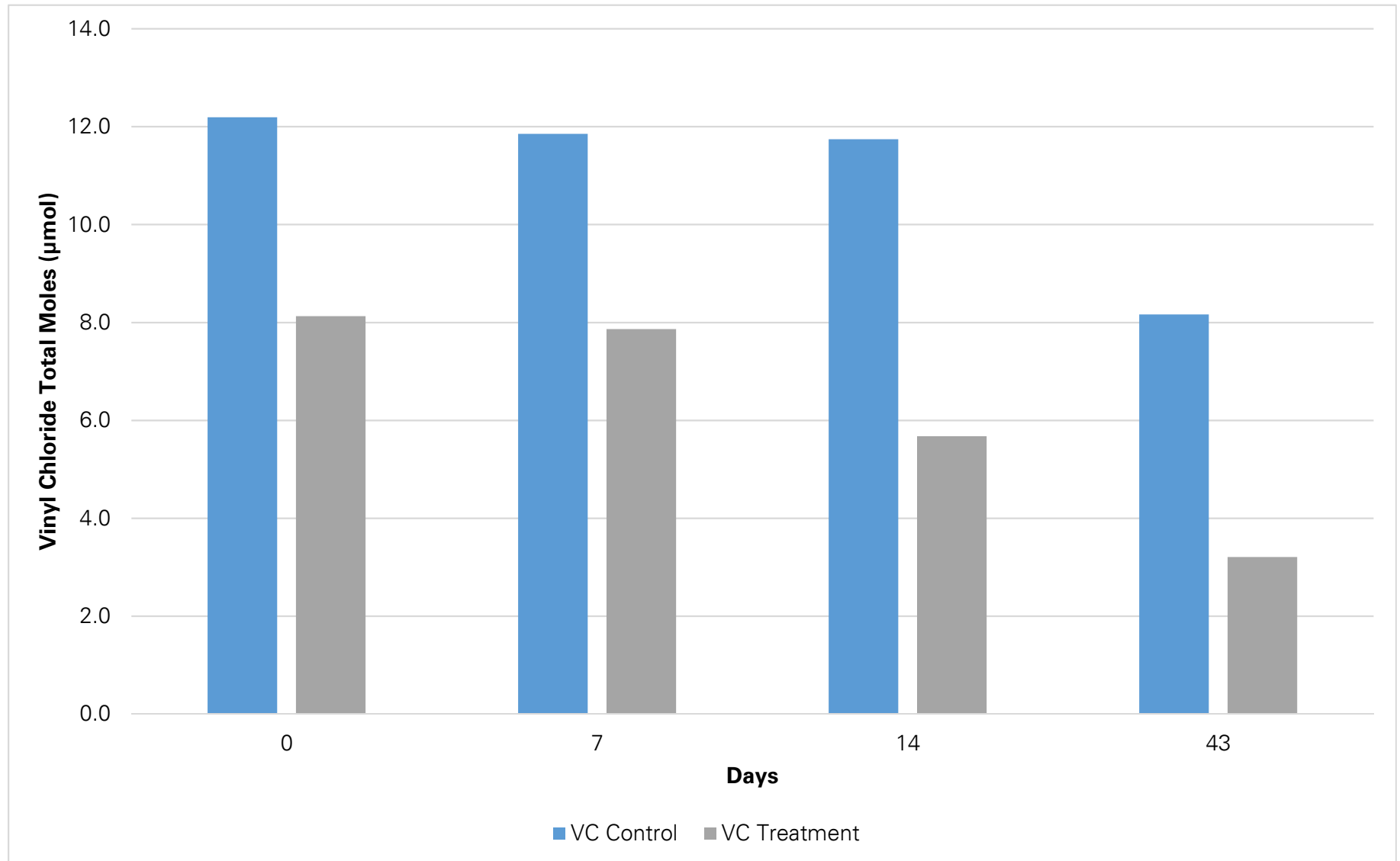
Appendix C3
1,1,1-TCA Total Moles
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022



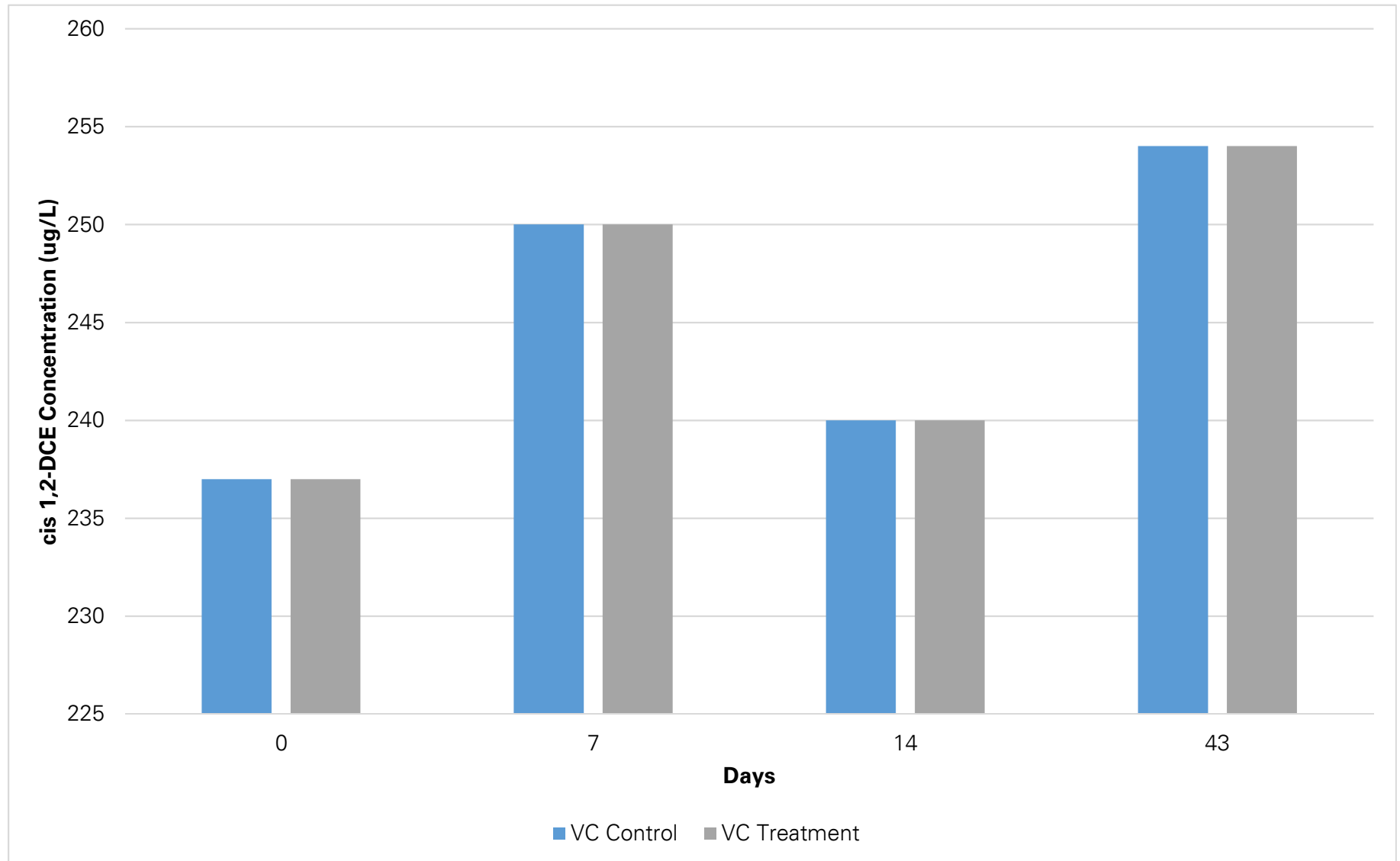
Appendix C3
Vinyl Chloride Concentration
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022



Appendix C3
Vinyl Chloride Total Moles
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022



Appendix C3
cis 1,2-DCE Concentration
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022



Appendix C3
cis 1,2-DCE Total Moles
Enhanced ZVI Injection Remedial Design
23-30 Borden Avenue Development
Queens, New York
Langan Project No.: 100766601
January 2022

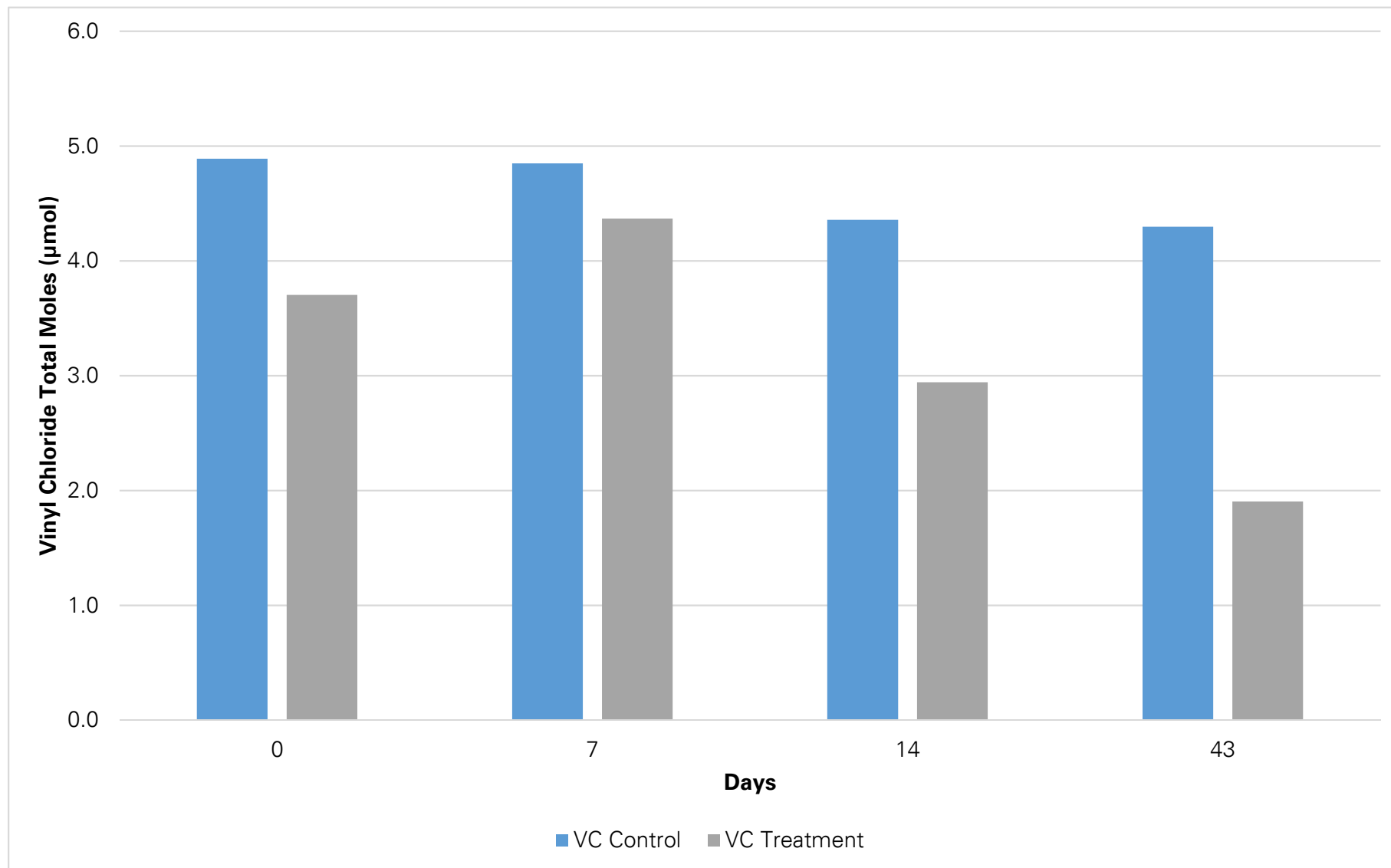




Photo 1: Filling 2 L jars with groundwater from Labtainer bags (treatability study setup).

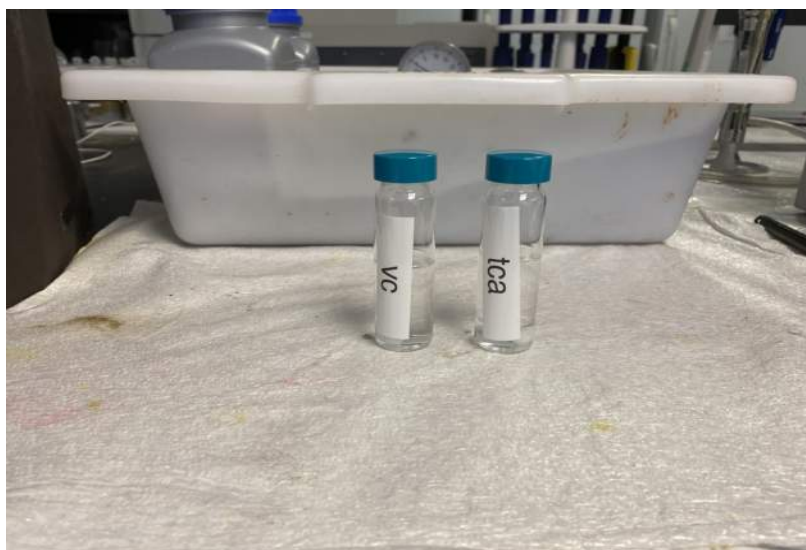


Photo 2: Standard solutions prepared for spiking (treatability study setup).



Photo 3: Reagents from TerraSense for addition to treatment jars

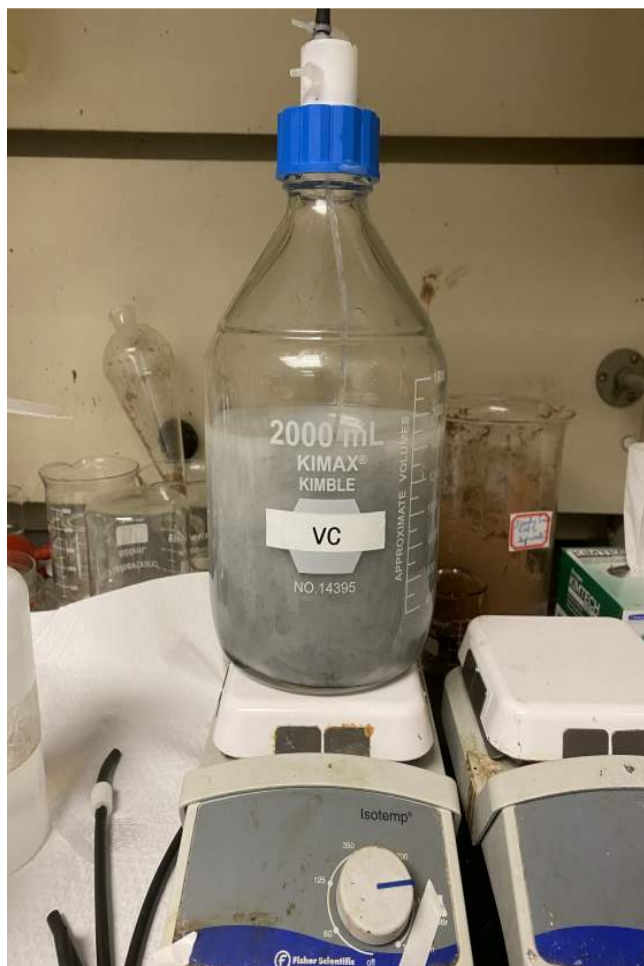


Photo 4: Vinyl chloride treatment jar after addition of treatment reagents (treatability study setup).

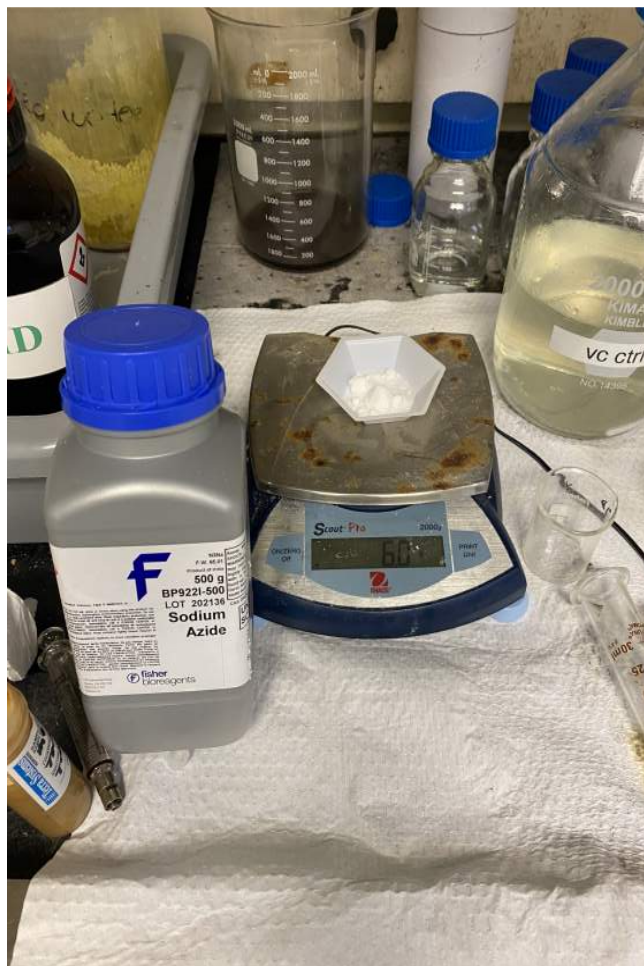


Photo 5: Sodium azide for addition to killed control jars

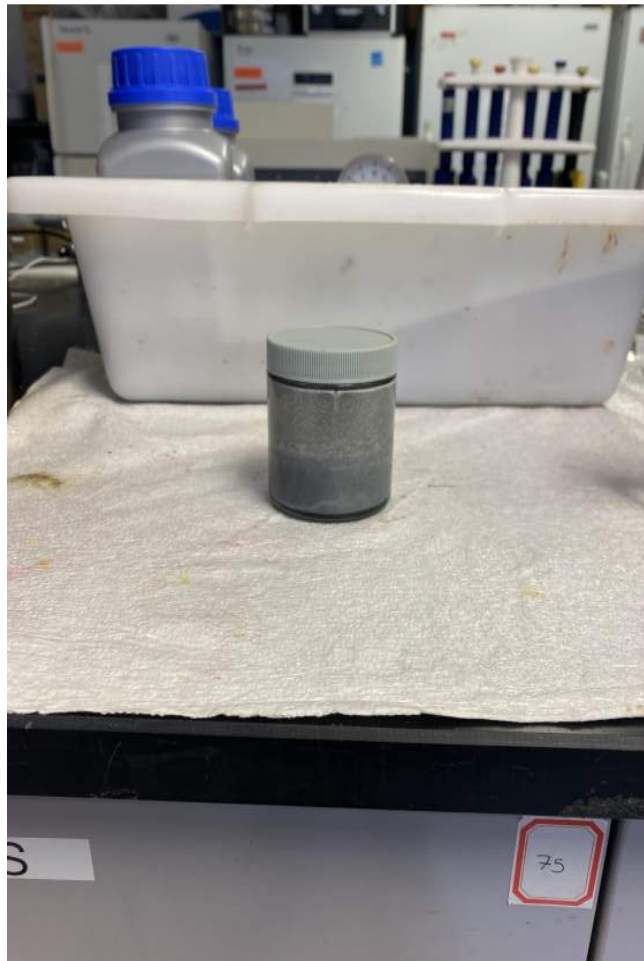


Photo 6: Combined ZVI and SRS



Photo 7: TCA jars filled to 2 L mark on stir plates (treatability study setup).



Photo 8: VC jars filled to 2 L mark on stir plates (treatability study setup).



Photo 9: VC jars after one week



Photo 10: TCA control after one week



Photo 11: Treated TCA jar after one week



Photo 12: TCA control after two weeks



Photo 13: VC jars after two weeks



Photo 14: Treated TCA jar after two weeks

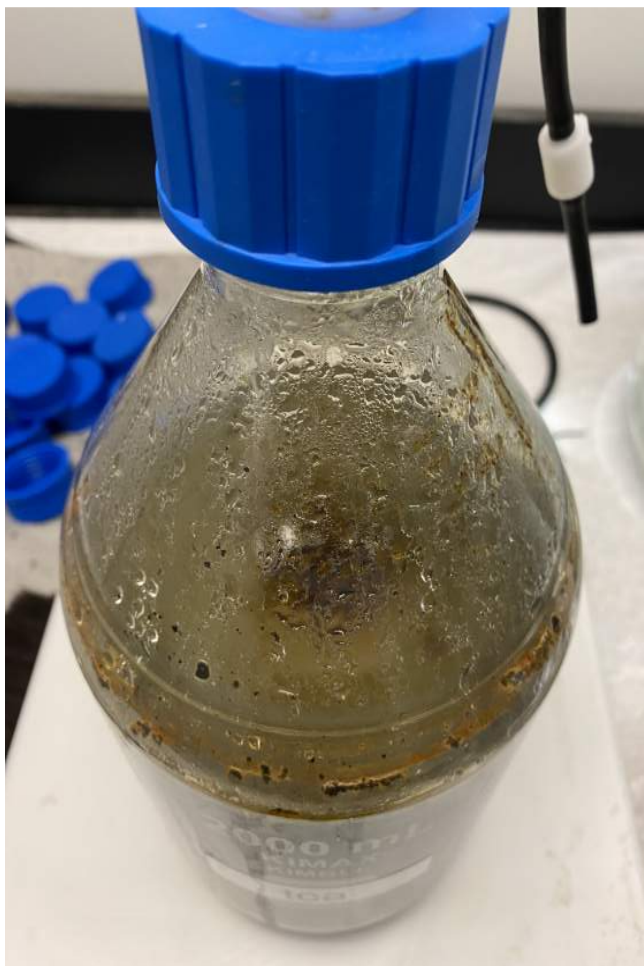


Photo 15: Rusty material visible in treated TCA jar (Week 2)



Photo 16: Rusty material visible in treated VC jar (Week 2)



Photo 17: Rusty material visible in treated TCA jar (Week 2)

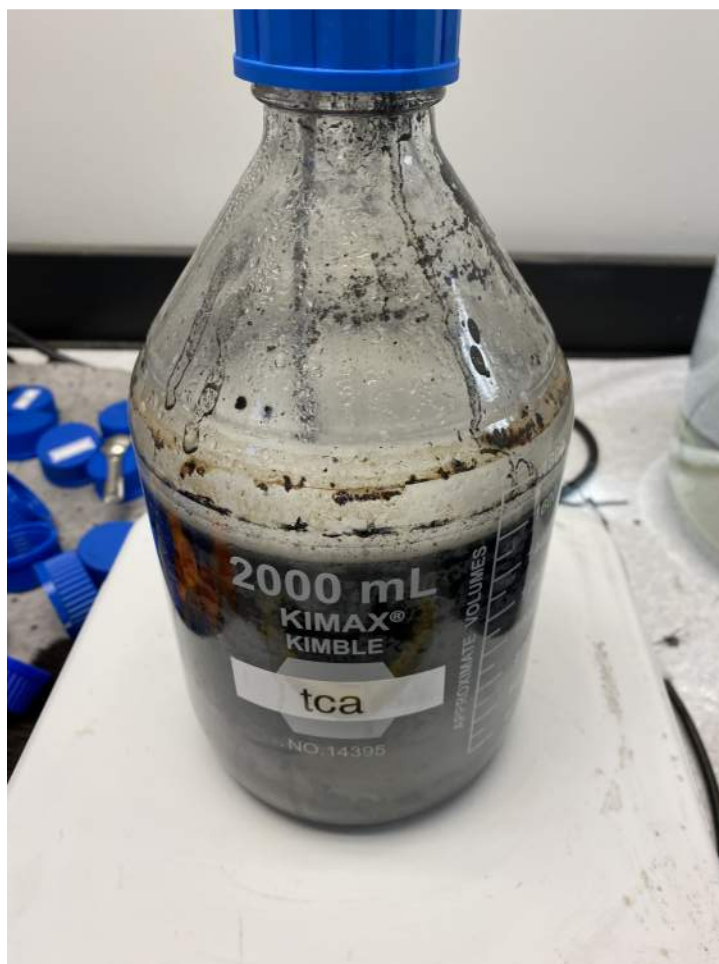


Photo 18: Treated TCA jar after addition of additional SRS and ZVI
(Week 4)



Photo 19: VC jars on Week 6



Photo 20: TCA jars on Week 6

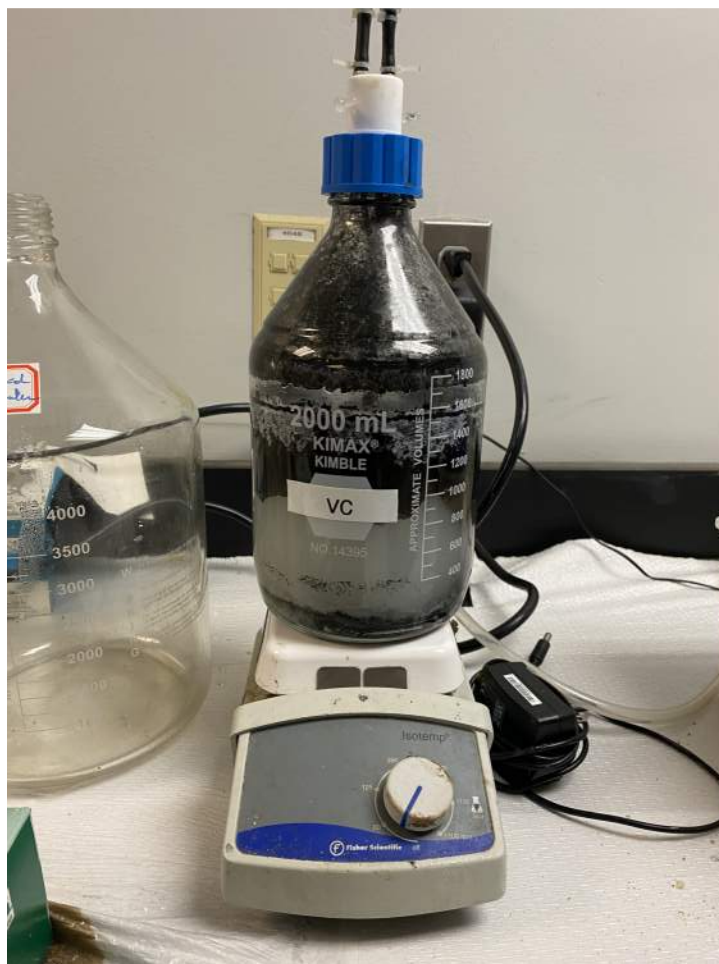


Photo 21: Treated VC jar on Week 7

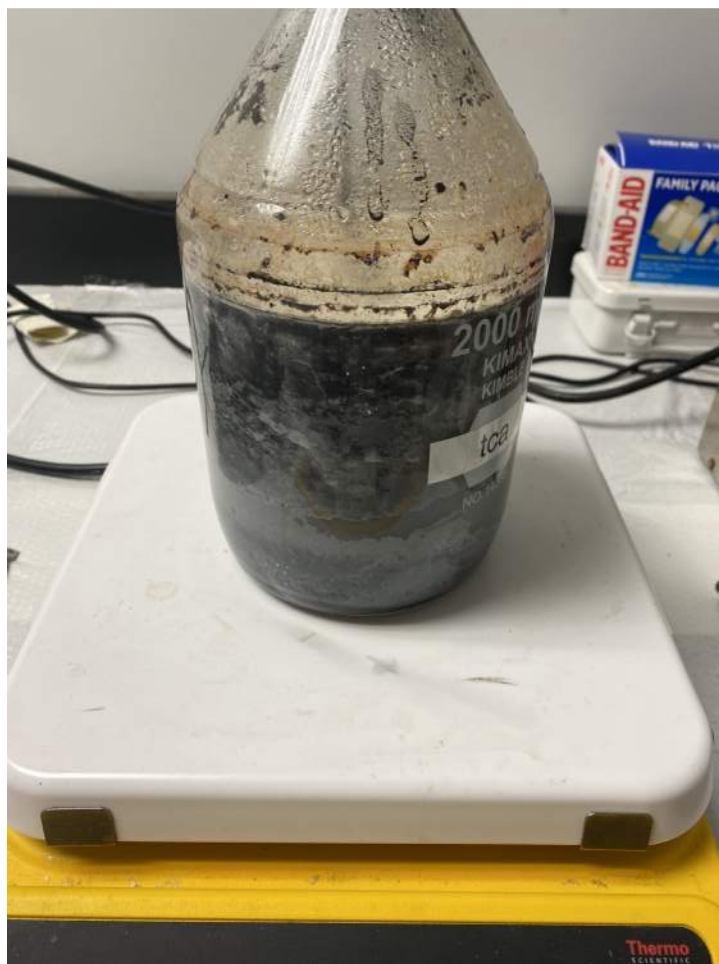


Photo 22: Treated TCA jar on Week 7

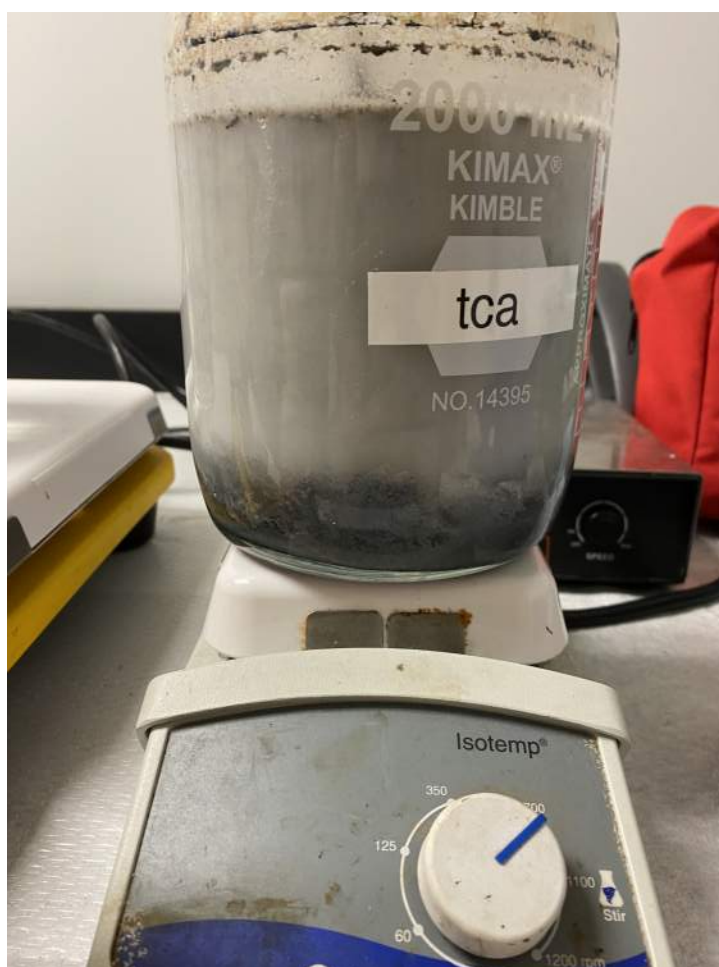


Photo 23: Treated TCA without stirring on Week 7



Technical Report

prepared for:

Langan Engineering & Environmental Services (NJ)

300 Kimball Drive, 4th Floor

Parsipanny NJ, 07054-2172

Attention: Aroona Boodram

Report Date: 11/19/2021

Client Project ID: 100766601

York Project (SDG) No.: 21K0819



CT Cert. No. PH-0723

New Jersey Cert. No. CT005 and NY037

New York Cert. Nos. 10854 and 12058

PA Cert. No. 68-04440

Report Date: 11/19/2021
Client Project ID: 100766601
York Project (SDG) No.: 21K0819

Langan Engineering & Environmental Services (NJ)
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Parsipanny NJ, 07054-2172
Attention: Aroona Boodram

Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on November 17, 2021 and listed below. The project was identified as your project: **100766601**.

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the customary acceptance requirements for environmental samples except those indicated under the Sample and Analysis Qualifiers section of this report.

All analyses met the method and laboratory standard operating procedure requirements except as indicated by any data flags, the meaning of which are explained in the Sample and Data Qualifiers Relating to This Work Order section of this report and case narrative if applicable.

The results of the analyses, which are all reported on dry weight basis (soils) unless otherwise noted, are detailed in the following pages.

Please contact Client Services at 203.325.1371 with any questions regarding this report.

<u>York Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>
21K0819-01	158-LMW-26	Water	11/16/2021	11/17/2021
21K0819-02	159-LMW-31	Water	11/16/2021	11/17/2021

General Notes for York Project (SDG) No.: 21K0819

1. The RLs and MDLs (Reporting Limit and Method Detection Limit respectively) reported are adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. The RL(REPORTING LIMIT) is based upon the lowest standard utilized for the calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All analyses conducted met method or Laboratory SOP requirements. See the Sample and Data Qualifiers Section for further information.
6. It is noted that no analyses reported herein were subcontracted to another laboratory, unless noted in the report.
7. This report reflects results that relate only to the samples submitted on the attached chain-of-custody form(s) received by York.
8. Analyses conducted at York Analytical Laboratories, Inc. Stratford, CT are indicated by NY Cert. No. 10854; those conducted at York Analytical Laboratories, Inc., Richmond Hill, NY are indicated by NY Cert. No. 12058.

Approved By



Cassie L. Mosher
Laboratory Manager

Date: 11/19/2021





Sample Information

Client Sample ID: 158-LMW-26

York Sample ID: 21K0819-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K0819

100766601

Water

November 16, 2021 11:40 am

11/17/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
71-55-6	1,1,1-Trichloroethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
79-00-5	1,1,2-Trichloroethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
75-34-3	1,1-Dichloroethane	0.200	J	ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
75-35-4	1,1-Dichloroethylene	0.420	J	ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
563-58-6	1,1-Dichloropropylene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	11/18/2021 09:00	11/18/2021 17:52	PD
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
96-18-4	1,2,3-Trichloropropane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
106-93-4	1,2-Dibromoethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
95-50-1	1,2-Dichlorobenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
107-06-2	1,2-Dichloroethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
78-87-5	1,2-Dichloropropane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
541-73-1	1,3-Dichlorobenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
142-28-9	1,3-Dichloropropane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
106-46-7	1,4-Dichlorobenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD

120 RESEARCH DRIVE

STRATFORD, CT 06615



132-02 89th AVENUE

RICHMOND HILL, NY 11418

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ClientServices@yorklab.com



Sample Information

Client Sample ID: 158-LMW-26

York Sample ID: 21K0819-01

York Project (SDG) No.
21K0819

Client Project ID
100766601

Matrix
Water

Collection Date/Time
November 16, 2021 11:40 am

Date Received
11/17/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
123-91-1	1,4-Dioxane	ND		ug/L	40.0	80.0	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
594-20-7	2,2-Dichloropropane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
78-93-3	2-Butanone	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
95-49-8	2-Chlorotoluene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
591-78-6	2-Hexanone	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
106-43-4	4-Chlorotoluene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
108-10-1	4-Methyl-2-pentanone	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
67-64-1	Acetone	ND		ug/L	1.00	2.00	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
107-02-8	Acrolein	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
107-13-1	Acrylonitrile	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
71-43-2	Benzene	5.57		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
108-86-1	Bromobenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
74-97-5	Bromochloromethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
75-27-4	Bromodichloromethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
75-25-2	Bromoform	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
74-83-9	Bromomethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
75-15-0	Carbon disulfide	0.240	J	ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
56-23-5	Carbon tetrachloride	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
108-90-7	Chlorobenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
75-00-3	Chloroethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
67-66-3	Chloroform	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
74-87-3	Chloromethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD



Sample Information

Client Sample ID: 158-LMW-26

York Sample ID: 21K0819-01

York Project (SDG) No.
21K0819

Client Project ID
100766601

Matrix
Water

Collection Date/Time
November 16, 2021 11:40 am

Date Received
11/17/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
156-59-2	cis-1,2-Dichloroethylene	323		ug/L	2.00	5.00	10	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/19/2021 09:00	11/19/2021 13:14	PD
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
110-82-7	Cyclohexane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
124-48-1	Dibromochloromethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
74-95-3	Dibromomethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
100-41-4	Ethyl Benzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
87-68-3	Hexachlorobutadiene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
98-82-8	Isopropylbenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
79-20-9	Methyl acetate	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
108-87-2	Methylcyclohexane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
75-09-2	Methylene chloride	ND		ug/L	1.00	2.00	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
104-51-8	n-Butylbenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
103-65-1	n-Propylbenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
95-47-6	o-Xylene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
179601-23-1	p- & m- Xylenes	ND		ug/L	0.500	1.00	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
99-87-6	p-Isopropyltoluene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
135-98-8	sec-Butylbenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
100-42-5	Styrene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	0.500	1.00	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
98-06-6	tert-Butylbenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD



Sample Information

Client Sample ID: 158-LMW-26

York Sample ID: 21K0819-01

York Project (SDG) No.
21K0819

Client Project ID
100766601

Matrix
Water

Collection Date/Time
November 16, 2021 11:40 am

Date Received
11/17/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
127-18-4	Tetrachloroethylene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
108-88-3	Toluene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
156-60-5	trans-1,2-Dichloroethylene	1.46		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
79-01-6	Trichloroethylene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
75-69-4	Trichlorofluoromethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
108-05-4	Vinyl acetate	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 17:52	PD
75-01-4	Vinyl Chloride	477		ug/L	2.00	5.00	10	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/19/2021 09:00	11/19/2021 13:14	PD
1330-20-7	Xylenes, Total	ND		ug/L	0.600	1.50	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	11/18/2021 09:00	11/18/2021 17:52	PD
Surrogate Recoveries		Result	Acceptance Range								
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	102 %	69-130								
2037-26-5	Surrogate: SURR: Toluene-d8	99.9 %	81-117								
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	101 %	79-122								



Sample Information

Client Sample ID: 159-LMW-31

York Sample ID: 21K0819-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K0819

100766601

Water

November 16, 2021 2:15 pm

11/17/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
71-55-6	1,1,1-Trichloroethane	16.4		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
79-00-5	1,1,2-Trichloroethane	0.250	J	ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
75-34-3	1,1-Dichloroethane	1.20		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
75-35-4	1,1-Dichloroethylene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
563-58-6	1,1-Dichloropropylene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	11/18/2021 09:00	11/18/2021 18:18	PD
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
96-18-4	1,2,3-Trichloropropane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
106-93-4	1,2-Dibromoethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
95-50-1	1,2-Dichlorobenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
107-06-2	1,2-Dichloroethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
78-87-5	1,2-Dichloropropane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
541-73-1	1,3-Dichlorobenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
142-28-9	1,3-Dichloropropane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
106-46-7	1,4-Dichlorobenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
123-91-1	1,4-Dioxane	ND		ug/L	40.0	80.0	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD

120 RESEARCH DRIVE

STRATFORD, CT 06615



132-02 89th AVENUE

RICHMOND HILL, NY 11418

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Sample Information

Client Sample ID: 159-LMW-31

York Sample ID: 21K0819-02

York Project (SDG) No.
21K0819

Client Project ID
100766601

Matrix
Water

Collection Date/Time
November 16, 2021 2:15 pm

Date Received
11/17/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
594-20-7	2,2-Dichloropropane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
78-93-3	2-Butanone	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
95-49-8	2-Chlorotoluene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
591-78-6	2-Hexanone	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
106-43-4	4-Chlorotoluene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
108-10-1	4-Methyl-2-pentanone	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
67-64-1	Acetone	ND		ug/L	1.00	2.00	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
107-02-8	Acrolein	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
107-13-1	Acrylonitrile	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
71-43-2	Benzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
108-86-1	Bromobenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
74-97-5	Bromochloromethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
75-27-4	Bromodichloromethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
75-25-2	Bromoform	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
74-83-9	Bromomethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
75-15-0	Carbon disulfide	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
56-23-5	Carbon tetrachloride	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
108-90-7	Chlorobenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
75-00-3	Chloroethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
67-66-3	Chloroform	0.500		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
74-87-3	Chloromethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
156-59-2	cis-1,2-Dichloroethylene	0.220	J	ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD



Sample Information

Client Sample ID: 159-LMW-31

York Sample ID: 21K0819-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K0819

100766601

Water

November 16, 2021 2:15 pm

11/17/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
110-82-7	Cyclohexane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
124-48-1	Dibromochloromethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
74-95-3	Dibromomethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
100-41-4	Ethyl Benzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
87-68-3	Hexachlorobutadiene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
98-82-8	Isopropylbenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
79-20-9	Methyl acetate	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
108-87-2	Methylcyclohexane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
75-09-2	Methylene chloride	ND		ug/L	1.00	2.00	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
104-51-8	n-Butylbenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
103-65-1	n-Propylbenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
95-47-6	o-Xylene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
179601-23-1	p- & m- Xylenes	ND		ug/L	0.500	1.00	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
99-87-6	p-Isopropyltoluene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
135-98-8	sec-Butylbenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
100-42-5	Styrene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	0.500	1.00	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
98-06-6	tert-Butylbenzene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
127-18-4	Tetrachloroethylene	3.93		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD

120 RESEARCH DRIVE

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132-02 89th AVENUE

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Sample Information

Client Sample ID: 159-LMW-31

York Sample ID: 21K0819-02

York Project (SDG) No.
21K0819

Client Project ID
100766601

Matrix
Water

Collection Date/Time
November 16, 2021 2:15 pm

Date Received
11/17/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-88-3	Toluene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
79-01-6	Trichloroethylene	0.820		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
75-69-4	Trichlorofluoromethane	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
108-05-4	Vinyl acetate	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
75-01-4	Vinyl Chloride	ND		ug/L	0.200	0.500	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	11/18/2021 09:00	11/18/2021 18:18	PD
1330-20-7	Xylenes, Total	ND		ug/L	0.600	1.50	1	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	11/18/2021 09:00	11/18/2021 18:18	PD
Surrogate Recoveries		Result	Acceptance Range								
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	96.7 %	69-130								
2037-26-5	Surrogate: SURR: Toluene-d8	101 %	81-117								
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	106 %	79-122								



Analytical Batch Summary

Batch ID: BK11974

Preparation Method: EPA 5030B

Prepared By: PD

YORK Sample ID	Client Sample ID	Preparation Date
21K0819-01	158-LMW-26	11/18/21
21K0819-02	159-LMW-31	11/18/21
BK11974-BLK1	Blank	11/18/21
BK11974-BS1	LCS	11/18/21
BK11974-BSD1	LCS Dup	11/18/21

Batch ID: BK12040

Preparation Method: EPA 5030B

Prepared By: PD

YORK Sample ID	Client Sample ID	Preparation Date
21K0819-01RE1	158-LMW-26	11/19/21
BK12040-BLK1	Blank	11/19/21
BK12040-BS1	LCS	11/19/21
BK12040-BSD1	LCS Dup	11/19/21



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BK11974 - EPA 5030B

Blank (BK11974-BLK1)	Blank									Prepared & Analyzed: 11/18/2021
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L							
1,1,1-Trichloroethane	ND	0.500	"							
1,1,2,2-Tetrachloroethane	ND	0.500	"							
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.500	"							
1,1,2-Trichloroethane	ND	0.500	"							
1,1-Dichloroethane	ND	0.500	"							
1,1-Dichloroethylene	ND	0.500	"							
1,1-Dichloropropylene	ND	0.500	"							
1,2,3-Trichlorobenzene	ND	0.500	"							
1,2,3-Trichloropropane	ND	0.500	"							
1,2,4-Trichlorobenzene	ND	0.500	"							
1,2,4-Trimethylbenzene	ND	0.500	"							
1,2-Dibromo-3-chloropropane	ND	0.500	"							
1,2-Dibromoethane	ND	0.500	"							
1,2-Dichlorobenzene	ND	0.500	"							
1,2-Dichloroethane	ND	0.500	"							
1,2-Dichloropropane	ND	0.500	"							
1,3,5-Trimethylbenzene	ND	0.500	"							
1,3-Dichlorobenzene	ND	0.500	"							
1,3-Dichloropropane	ND	0.500	"							
1,4-Dichlorobenzene	ND	0.500	"							
1,4-Dioxane	ND	80.0	"							
2,2-Dichloropropane	ND	0.500	"							
2-Butanone	ND	0.500	"							
2-Chlorotoluene	ND	0.500	"							
2-Hexanone	ND	0.500	"							
4-Chlorotoluene	ND	0.500	"							
4-Methyl-2-pentanone	ND	0.500	"							
Acetone	ND	2.00	"							
Acrolein	ND	0.500	"							
Acrylonitrile	ND	0.500	"							
Benzene	ND	0.500	"							
Bromobenzene	ND	0.500	"							
Bromochloromethane	ND	0.500	"							
Bromodichloromethane	ND	0.500	"							
Bromoform	ND	0.500	"							
Bromomethane	ND	0.500	"							
Carbon disulfide	ND	0.500	"							
Carbon tetrachloride	ND	0.500	"							
Chlorobenzene	ND	0.500	"							
Chloroethane	ND	0.500	"							
Chloroform	ND	0.500	"							
Chloromethane	ND	0.500	"							
cis-1,2-Dichloroethylene	ND	0.500	"							
cis-1,3-Dichloropropylene	ND	0.500	"							
Cyclohexane	ND	0.500	"							
Dibromochloromethane	ND	0.500	"							
Dibromomethane	ND	0.500	"							
Dichlorodifluoromethane	ND	0.500	"							
Ethyl Benzene	ND	0.500	"							



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BK11974 - EPA 5030B

Blank (BK11974-BLK1)	Blank	Prepared & Analyzed: 11/18/2021									
Hexachlorobutadiene	ND	0.500	ug/L								
Isopropylbenzene	ND	0.500	"								
Methyl acetate	ND	0.500	"								
Methyl tert-butyl ether (MTBE)	ND	0.500	"								
Methylcyclohexane	ND	0.500	"								
Methylene chloride	ND	2.00	"								
n-Butylbenzene	ND	0.500	"								
n-Propylbenzene	ND	0.500	"								
o-Xylene	ND	0.500	"								
p- & m- Xylenes	ND	1.00	"								
p-Isopropyltoluene	ND	0.500	"								
sec-Butylbenzene	ND	0.500	"								
Styrene	ND	0.500	"								
tert-Butyl alcohol (TBA)	ND	1.00	"								
tert-Butylbenzene	ND	0.500	"								
Tetrachloroethylene	ND	0.500	"								
Toluene	ND	0.500	"								
trans-1,2-Dichloroethylene	ND	0.500	"								
trans-1,3-Dichloropropylene	ND	0.500	"								
Trichloroethylene	ND	0.500	"								
Trichlorofluoromethane	ND	0.500	"								
Vinyl acetate	ND	0.500	"								
Vinyl Chloride	ND	0.500	"								
Xylenes, Total	ND	1.50	"								
Surrogate: SURR: 1,2-Dichloroethane-d4	10.6		"	10.0		106	69-130				
Surrogate: SURR: Toluene-d8	9.95		"	10.0		99.5	81-117				
Surrogate: SURR: p-Bromofluorobenzene	10.2		"	10.0		102	79-122				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BK11974 - EPA 5030B											
LCS (BK11974-BS1)	LCS						Prepared & Analyzed: 11/18/2021				
1,1,1,2-Tetrachloroethane	9.00		ug/L	10.0		90.0	82-126				
1,1,1-Trichloroethane	9.61		"	10.0		96.1	78-136				
1,1,2,2-Tetrachloroethane	9.11		"	10.0		91.1	76-129				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	10.7		"	10.0		107	54-165				
1,1,2-Trichloroethane	8.58		"	10.0		85.8	82-123				
1,1-Dichloroethane	9.40		"	10.0		94.0	82-129				
1,1-Dichloroethylene	10.0		"	10.0		100	68-138				
1,1-Dichloropropylene	9.30		"	10.0		93.0	83-133				
1,2,3-Trichlorobenzene	8.46		"	10.0		84.6	76-136				
1,2,3-Trichloropropane	9.04		"	10.0		90.4	77-128				
1,2,4-Trichlorobenzene	8.88		"	10.0		88.8	76-137				
1,2,4-Trimethylbenzene	9.73		"	10.0		97.3	82-132				
1,2-Dibromo-3-chloropropane	8.08		"	10.0		80.8	45-147				
1,2-Dibromoethane	8.61		"	10.0		86.1	83-124				
1,2-Dichlorobenzene	9.33		"	10.0		93.3	79-123				
1,2-Dichloroethane	9.17		"	10.0		91.7	73-132				
1,2-Dichloropropane	9.74		"	10.0		97.4	78-126				
1,3,5-Trimethylbenzene	9.70		"	10.0		97.0	80-131				
1,3-Dichlorobenzene	9.45		"	10.0		94.5	86-122				
1,3-Dichloropropane	8.91		"	10.0		89.1	81-125				
1,4-Dichlorobenzene	9.43		"	10.0		94.3	85-124				
1,4-Dioxane	241		"	210		115	10-349				
2,2-Dichloropropane	10.4		"	10.0		104	56-150				
2-Butanone	7.51		"	10.0		75.1	49-152				
2-Chlorotoluene	9.66		"	10.0		96.6	79-130				
2-Hexanone	6.42		"	10.0		64.2	51-146				
4-Chlorotoluene	9.87		"	10.0		98.7	79-128				
4-Methyl-2-pentanone	6.84		"	10.0		68.4	57-145				
Acetone	3.90		"	10.0		39.0	14-150				
Acrolein	26.6		"	10.0		266	10-153	High Bias			
Acrylonitrile	9.61		"	10.0		96.1	51-150				
Benzene	9.69		"	10.0		96.9	85-126				
Bromobenzene	9.33		"	10.0		93.3	78-129				
Bromochloromethane	9.86		"	10.0		98.6	77-128				
Bromodichloromethane	9.37		"	10.0		93.7	79-128				
Bromoform	8.97		"	10.0		89.7	78-133				
Bromomethane	7.67		"	10.0		76.7	43-168				
Carbon disulfide	11.4		"	10.0		114	68-146				
Carbon tetrachloride	10.0		"	10.0		100	77-141				
Chlorobenzene	9.88		"	10.0		98.8	88-120				
Chloroethane	10.5		"	10.0		105	65-136				
Chloroform	9.61		"	10.0		96.1	82-128				
Chloromethane	9.76		"	10.0		97.6	43-155				
cis-1,2-Dichloroethylene	9.76		"	10.0		97.6	83-129				
cis-1,3-Dichloropropylene	9.25		"	10.0		92.5	80-131				
Cyclohexane	9.34		"	10.0		93.4	63-149				
Dibromochloromethane	8.82		"	10.0		88.2	80-130				
Dibromomethane	9.05		"	10.0		90.5	72-134				
Dichlorodifluoromethane	12.2		"	10.0		122	44-144				
Ethyl Benzene	9.84		"	10.0		98.4	80-131				
Hexachlorobutadiene	9.42		"	10.0		94.2	67-146				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BK11974 - EPA 5030B											
LCS (BK11974-BS1)	LCS		Prepared & Analyzed: 11/18/2021								
Isopropylbenzene	10.0		ug/L	10.0		100	76-140				
Methyl acetate	8.26		"	10.0		82.6	51-139				
Methyl tert-butyl ether (MTBE)	8.19		"	10.0		81.9	76-135				
Methylcyclohexane	9.39		"	10.0		93.9	72-143				
Methylene chloride	9.45		"	10.0		94.5	55-137				
n-Butylbenzene	9.46		"	10.0		94.6	79-132				
n-Propylbenzene	9.82		"	10.0		98.2	78-133				
o-Xylene	9.84		"	10.0		98.4	78-130				
p- & m- Xylenes	19.8		"	20.0		98.8	77-133				
p-Isopropyltoluene	9.65		"	10.0		96.5	81-136				
sec-Butylbenzene	9.74		"	10.0		97.4	79-137				
Styrene	9.45		"	10.0		94.5	67-132				
tert-Butyl alcohol (TBA)	38.6		"	50.0		77.3	25-162				
tert-Butylbenzene	9.53		"	10.0		95.3	77-138				
Tetrachloroethylene	5.51		"	10.0		55.1	82-131	Low Bias			
Toluene	9.70		"	10.0		97.0	80-127				
trans-1,2-Dichloroethylene	9.77		"	10.0		97.7	80-132				
trans-1,3-Dichloropropylene	8.93		"	10.0		89.3	78-131				
Trichloroethylene	9.52		"	10.0		95.2	82-128				
Trichlorofluoromethane	9.68		"	10.0		96.8	67-139				
Vinyl acetate	10.4		"	10.0		104	21-90	High Bias			
Vinyl Chloride	10.2		"	10.0		102	58-145				
<i>Surrogate: SURR: 1,2-Dichloroethane-d4</i>	<i>9.53</i>		<i>"</i>	<i>10.0</i>		<i>95.3</i>	<i>69-130</i>				
<i>Surrogate: SURR: Toluene-d8</i>	<i>10.1</i>		<i>"</i>	<i>10.0</i>		<i>101</i>	<i>81-117</i>				
<i>Surrogate: SURR: p-Bromofluorobenzene</i>	<i>10.0</i>		<i>"</i>	<i>10.0</i>		<i>100</i>	<i>79-122</i>				
LCS Dup (BK11974-BSD1)	LCS Dup		Prepared & Analyzed: 11/18/2021								
1,1,1,2-Tetrachloroethane	9.16		ug/L	10.0		91.6	82-126		1.76	30	
1,1,1-Trichloroethane	9.29		"	10.0		92.9	78-136		3.39	30	
1,1,2,2-Tetrachloroethane	9.93		"	10.0		99.3	76-129		8.61	30	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	10.3		"	10.0		103	54-165		4.10	30	
1,1,2-Trichloroethane	9.30		"	10.0		93.0	82-123		8.05	30	
1,1-Dichloroethane	9.31		"	10.0		93.1	82-129		0.962	30	
1,1-Dichloroethylene	9.38		"	10.0		93.8	68-138		6.80	30	
1,1-Dichloropropylene	9.00		"	10.0		90.0	83-133		3.28	30	
1,2,3-Trichlorobenzene	9.31		"	10.0		93.1	76-136		9.57	30	
1,2,3-Trichloropropane	9.92		"	10.0		99.2	77-128		9.28	30	
1,2,4-Trichlorobenzene	9.37		"	10.0		93.7	76-137		5.37	30	
1,2,4-Trimethylbenzene	9.03		"	10.0		90.3	82-132		7.46	30	
1,2-Dibromo-3-chloropropane	9.29		"	10.0		92.9	45-147		13.9	30	
1,2-Dibromoethane	9.54		"	10.0		95.4	83-124		10.2	30	
1,2-Dichlorobenzene	9.15		"	10.0		91.5	79-123		1.95	30	
1,2-Dichloroethane	9.69		"	10.0		96.9	73-132		5.51	30	
1,2-Dichloropropane	9.61		"	10.0		96.1	78-126		1.34	30	
1,3,5-Trimethylbenzene	8.96		"	10.0		89.6	80-131		7.93	30	
1,3-Dichlorobenzene	9.00		"	10.0		90.0	86-122		4.88	30	
1,3-Dichloropropane	9.65		"	10.0		96.5	81-125		7.97	30	
1,4-Dichlorobenzene	9.22		"	10.0		92.2	85-124		2.25	30	
1,4-Dioxane	359		"	210		171	10-349		39.2	30	Non-dir.
2,2-Dichloropropane	9.88		"	10.0		98.8	56-150		5.42	30	
2-Butanone	8.75		"	10.0		87.5	49-152		15.3	30	



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BK11974 - EPA 5030B											
LCS Dup (BK11974-BSD1)	LCS Dup		Prepared & Analyzed: 11/18/2021								
2-Chlorotoluene	8.92		ug/L	10.0		89.2	79-130		7.97	30	
2-Hexanone	7.78		"	10.0		77.8	51-146		19.2	30	
4-Chlorotoluene	9.10		"	10.0		91.0	79-128		8.12	30	
4-Methyl-2-pentanone	8.04		"	10.0		80.4	57-145		16.1	30	
Acetone	4.51		"	10.0		45.1	14-150		14.5	30	
Acrolein	32.8		"	10.0		328	10-153	High Bias	21.1	30	
Acrylonitrile	9.43		"	10.0		94.3	51-150		1.89	30	
Benzene	9.57		"	10.0		95.7	85-126		1.25	30	
Bromobenzene	8.87		"	10.0		88.7	78-129		5.05	30	
Bromochloromethane	10.1		"	10.0		101	77-128		2.31	30	
Bromodichloromethane	9.44		"	10.0		94.4	79-128		0.744	30	
Bromoform	9.78		"	10.0		97.8	78-133		8.64	30	
Bromomethane	7.37		"	10.0		73.7	43-168		3.99	30	
Carbon disulfide	10.7		"	10.0		107	68-146		6.96	30	
Carbon tetrachloride	9.41		"	10.0		94.1	77-141		6.28	30	
Chlorobenzene	9.67		"	10.0		96.7	88-120		2.15	30	
Chloroethane	9.89		"	10.0		98.9	65-136		5.98	30	
Chloroform	9.59		"	10.0		95.9	82-128		0.208	30	
Chloromethane	9.24		"	10.0		92.4	43-155		5.47	30	
cis-1,2-Dichloroethylene	9.27		"	10.0		92.7	83-129		5.15	30	
cis-1,3-Dichloropropylene	9.39		"	10.0		93.9	80-131		1.50	30	
Cyclohexane	8.91		"	10.0		89.1	63-149		4.71	30	
Dibromochloromethane	9.69		"	10.0		96.9	80-130		9.40	30	
Dibromomethane	9.65		"	10.0		96.5	72-134		6.42	30	
Dichlorodifluoromethane	11.5		"	10.0		115	44-144		5.41	30	
Ethyl Benzene	9.30		"	10.0		93.0	80-131		5.64	30	
Hexachlorobutadiene	9.27		"	10.0		92.7	67-146		1.61	30	
Isopropylbenzene	9.01		"	10.0		90.1	76-140		10.5	30	
Methyl acetate	9.49		"	10.0		94.9	51-139		13.9	30	
Methyl tert-butyl ether (MTBE)	9.17		"	10.0		91.7	76-135		11.3	30	
Methylcyclohexane	8.93		"	10.0		89.3	72-143		5.02	30	
Methylene chloride	9.70		"	10.0		97.0	55-137		2.61	30	
n-Butylbenzene	9.07		"	10.0		90.7	79-132		4.21	30	
n-Propylbenzene	8.89		"	10.0		88.9	78-133		9.94	30	
o-Xylene	9.55		"	10.0		95.5	78-130		2.99	30	
p- & m- Xylenes	18.8		"	20.0		94.2	77-133		4.82	30	
p-Isopropyltoluene	9.13		"	10.0		91.3	81-136		5.54	30	
sec-Butylbenzene	9.03		"	10.0		90.3	79-137		7.57	30	
Styrene	9.32		"	10.0		93.2	67-132		1.39	30	
tert-Butyl alcohol (TBA)	52.0		"	50.0		104	25-162		29.5	30	
tert-Butylbenzene	8.75		"	10.0		87.5	77-138		8.53	30	
Tetrachloroethylene	5.32		"	10.0		53.2	82-131	Low Bias	3.51	30	
Toluene	9.20		"	10.0		92.0	80-127		5.29	30	
trans-1,2-Dichloroethylene	9.33		"	10.0		93.3	80-132		4.61	30	
trans-1,3-Dichloropropylene	9.62		"	10.0		96.2	78-131		7.44	30	
Trichloroethylene	8.82		"	10.0		88.2	82-128		7.63	30	
Trichlorofluoromethane	9.27		"	10.0		92.7	67-139		4.33	30	
Vinyl acetate	11.1		"	10.0		111	21-90	High Bias	6.97	30	
Vinyl Chloride	9.55		"	10.0		95.5	58-145		6.88	30	
Surrogate: SURR: 1,2-Dichloroethane-d4	10.4		"	10.0		104	69-130				
Surrogate: SURR: Toluene-d8	10.0		"	10.0		100	81-117				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BK11974 - EPA 5030B

LCS Dup (BK11974-BSD1) LCS Dup

Prepared & Analyzed: 11/18/2021

Surrogate: SURR: p-Bromofluorobenzene 9.89 ug/L 10.0 98.9 79-122

Batch BK12040 - EPA 5030B

Blank (BK12040-BLK1) Blank

Prepared & Analyzed: 11/19/2021

1,1,1,2-Tetrachloroethane	ND	0.500	ug/L
1,1,1-Trichloroethane	ND	0.500	"
1,1,2,2-Tetrachloroethane	ND	0.500	"
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.500	"
1,1,2-Trichloroethane	ND	0.500	"
1,1-Dichloroethane	ND	0.500	"
1,1-Dichloroethylene	ND	0.500	"
1,1-Dichloropropylene	ND	0.500	"
1,2,3-Trichlorobenzene	ND	0.500	"
1,2,3-Trichloropropane	ND	0.500	"
1,2,4-Trichlorobenzene	ND	0.500	"
1,2,4-Trimethylbenzene	ND	0.500	"
1,2-Dibromo-3-chloropropane	ND	0.500	"
1,2-Dibromoethane	ND	0.500	"
1,2-Dichlorobenzene	ND	0.500	"
1,2-Dichloroethane	ND	0.500	"
1,2-Dichloropropane	ND	0.500	"
1,3,5-Trimethylbenzene	ND	0.500	"
1,3-Dichlorobenzene	ND	0.500	"
1,3-Dichloropropane	ND	0.500	"
1,4-Dichlorobenzene	ND	0.500	"
1,4-Dioxane	ND	80.0	"
2,2-Dichloropropane	ND	0.500	"
2-Butanone	ND	0.500	"
2-Chlorotoluene	ND	0.500	"
2-Hexanone	ND	0.500	"
4-Chlorotoluene	ND	0.500	"
4-Methyl-2-pentanone	ND	0.500	"
Acetone	ND	2.00	"
Acrolein	ND	0.500	"
Acrylonitrile	ND	0.500	"
Benzene	ND	0.500	"
Bromobenzene	ND	0.500	"
Bromochloromethane	ND	0.500	"
Bromodichloromethane	ND	0.500	"
Bromoform	ND	0.500	"
Bromomethane	ND	0.500	"
Carbon disulfide	0.250	0.500	"
Carbon tetrachloride	ND	0.500	"
Chlorobenzene	ND	0.500	"
Chloroethane	ND	0.500	"
Chloroform	ND	0.500	"
Chloromethane	ND	0.500	"
cis-1,2-Dichloroethylene	ND	0.500	"
cis-1,3-Dichloropropylene	ND	0.500	"
Cyclohexane	ND	0.500	"



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BK12040 - EPA 5030B

Blank (BK12040-BLK1)	Blank	Prepared & Analyzed: 11/19/2021									
Dibromochloromethane	ND	0.500	ug/L								
Dibromomethane	ND	0.500	"								
Dichlorodifluoromethane	ND	0.500	"								
Ethyl Benzene	ND	0.500	"								
Hexachlorobutadiene	ND	0.500	"								
Isopropylbenzene	ND	0.500	"								
Methyl acetate	ND	0.500	"								
Methyl tert-butyl ether (MTBE)	ND	0.500	"								
Methylcyclohexane	ND	0.500	"								
Methylene chloride	ND	2.00	"								
n-Butylbenzene	ND	0.500	"								
n-Propylbenzene	ND	0.500	"								
o-Xylene	ND	0.500	"								
p- & m- Xylenes	ND	1.00	"								
p-Isopropyltoluene	ND	0.500	"								
sec-Butylbenzene	ND	0.500	"								
Styrene	ND	0.500	"								
tert-Butyl alcohol (TBA)	ND	1.00	"								
tert-Butylbenzene	ND	0.500	"								
Tetrachloroethylene	ND	0.500	"								
Toluene	ND	0.500	"								
trans-1,2-Dichloroethylene	ND	0.500	"								
trans-1,3-Dichloropropylene	ND	0.500	"								
Trichloroethylene	ND	0.500	"								
Trichlorofluoromethane	ND	0.500	"								
Vinyl acetate	ND	0.500	"								
Vinyl Chloride	ND	0.500	"								
Xylenes, Total	ND	1.50	"								
Surrogate: SURR: 1,2-Dichloroethane-d4	10.7		"	10.0		107	69-130				
Surrogate: SURR: Toluene-d8	9.91		"	10.0		99.1	81-117				
Surrogate: SURR: p-Bromofluorobenzene	10.1		"	10.0		101	79-122				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BK12040 - EPA 5030B											
LCS (BK12040-BS1)	LCS		Prepared & Analyzed: 11/19/2021								
1,1,1,2-Tetrachloroethane	8.62		ug/L	10.0		86.2	82-126				
1,1,1-Trichloroethane	8.94		"	10.0		89.4	78-136				
1,1,2,2-Tetrachloroethane	8.92		"	10.0		89.2	76-129				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	9.99		"	10.0		99.9	54-165				
1,1,2-Trichloroethane	8.59		"	10.0		85.9	82-123				
1,1-Dichloroethane	8.52		"	10.0		85.2	82-129				
1,1-Dichloroethylene	9.00		"	10.0		90.0	68-138				
1,1-Dichloropropylene	8.40		"	10.0		84.0	83-133				
1,2,3-Trichlorobenzene	8.70		"	10.0		87.0	76-136				
1,2,3-Trichloropropane	8.64		"	10.0		86.4	77-128				
1,2,4-Trichlorobenzene	8.67		"	10.0		86.7	76-137				
1,2,4-Trimethylbenzene	9.11		"	10.0		91.1	82-132				
1,2-Dibromo-3-chloropropane	7.57		"	10.0		75.7	45-147				
1,2-Dibromoethane	8.66		"	10.0		86.6	83-124				
1,2-Dichlorobenzene	8.70		"	10.0		87.0	79-123				
1,2-Dichloroethane	8.70		"	10.0		87.0	73-132				
1,2-Dichloropropane	9.05		"	10.0		90.5	78-126				
1,3,5-Trimethylbenzene	8.85		"	10.0		88.5	80-131				
1,3-Dichlorobenzene	8.76		"	10.0		87.6	86-122				
1,3-Dichloropropane	8.50		"	10.0		85.0	81-125				
1,4-Dichlorobenzene	8.78		"	10.0		87.8	85-124				
1,4-Dioxane	293		"	210		139	10-349				
2,2-Dichloropropane	9.48		"	10.0		94.8	56-150				
2-Butanone	8.08		"	10.0		80.8	49-152				
2-Chlorotoluene	8.87		"	10.0		88.7	79-130				
2-Hexanone	7.31		"	10.0		73.1	51-146				
4-Chlorotoluene	8.91		"	10.0		89.1	79-128				
4-Methyl-2-pentanone	7.62		"	10.0		76.2	57-145				
Acetone	4.61		"	10.0		46.1	14-150				
Acrolein	29.0		"	10.0		290	10-153	High Bias			
Acrylonitrile	8.09		"	10.0		80.9	51-150				
Benzene	8.89		"	10.0		88.9	85-126				
Bromobenzene	8.55		"	10.0		85.5	78-129				
Bromochloromethane	9.29		"	10.0		92.9	77-128				
Bromodichloromethane	8.83		"	10.0		88.3	79-128				
Bromoform	8.36		"	10.0		83.6	78-133				
Bromomethane	5.08		"	10.0		50.8	43-168				
Carbon disulfide	10.6		"	10.0		106	68-146				
Carbon tetrachloride	9.16		"	10.0		91.6	77-141				
Chlorobenzene	9.25		"	10.0		92.5	88-120				
Chloroethane	10.4		"	10.0		104	65-136				
Chloroform	8.78		"	10.0		87.8	82-128				
Chloromethane	9.66		"	10.0		96.6	43-155				
cis-1,2-Dichloroethylene	8.83		"	10.0		88.3	83-129				
cis-1,3-Dichloropropylene	8.56		"	10.0		85.6	80-131				
Cyclohexane	9.10		"	10.0		91.0	63-149				
Dibromochloromethane	8.61		"	10.0		86.1	80-130				
Dibromomethane	8.55		"	10.0		85.5	72-134				
Dichlorodifluoromethane	13.4		"	10.0		134	44-144				
Ethyl Benzene	8.97		"	10.0		89.7	80-131				
Hexachlorobutadiene	8.68		"	10.0		86.8	67-146				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BK12040 - EPA 5030B											
LCS (BK12040-BS1)	LCS		Prepared & Analyzed: 11/19/2021								
Isopropylbenzene	9.15		ug/L	10.0		91.5	76-140				
Methyl acetate	9.06		"	10.0		90.6	51-139				
Methyl tert-butyl ether (MTBE)	8.32		"	10.0		83.2	76-135				
Methylcyclohexane	9.33		"	10.0		93.3	72-143				
Methylene chloride	8.98		"	10.0		89.8	55-137				
n-Butylbenzene	9.17		"	10.0		91.7	79-132				
n-Propylbenzene	8.98		"	10.0		89.8	78-133				
o-Xylene	9.06		"	10.0		90.6	78-130				
p- & m- Xylenes	18.4		"	20.0		92.0	77-133				
p-Isopropyltoluene	9.04		"	10.0		90.4	81-136				
sec-Butylbenzene	8.91		"	10.0		89.1	79-137				
Styrene	8.78		"	10.0		87.8	67-132				
tert-Butyl alcohol (TBA)	46.0		"	50.0		92.0	25-162				
tert-Butylbenzene	8.76		"	10.0		87.6	77-138				
Tetrachloroethylene	5.17		"	10.0		51.7	82-131	Low Bias			
Toluene	9.15		"	10.0		91.5	80-127				
trans-1,2-Dichloroethylene	8.90		"	10.0		89.0	80-132				
trans-1,3-Dichloropropylene	8.64		"	10.0		86.4	78-131				
Trichloroethylene	8.58		"	10.0		85.8	82-128				
Trichlorofluoromethane	9.66		"	10.0		96.6	67-139				
Vinyl acetate	10.5		"	10.0		105	21-90	High Bias			
Vinyl Chloride	10.4		"	10.0		104	58-145				
<i>Surrogate: SURR: 1,2-Dichloroethane-d4</i>											
	9.79		"	10.0		97.9	69-130				
<i>Surrogate: SURR: Toluene-d8</i>											
	10.1		"	10.0		101	81-117				
<i>Surrogate: SURR: p-Bromofluorobenzene</i>											
	10.1		"	10.0		101	79-122				
LCS Dup (BK12040-BSD1)	LCS Dup		Prepared & Analyzed: 11/19/2021								
1,1,1,2-Tetrachloroethane	8.59		ug/L	10.0		85.9	82-126		0.349	30	
1,1,1-Trichloroethane	8.88		"	10.0		88.8	78-136		0.673	30	
1,1,2,2-Tetrachloroethane	9.91		"	10.0		99.1	76-129		10.5	30	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	9.79		"	10.0		97.9	54-165		2.02	30	
1,1,2-Trichloroethane	9.42		"	10.0		94.2	82-123		9.22	30	
1,1-Dichloroethane	8.72		"	10.0		87.2	82-129		2.32	30	
1,1-Dichloroethylene	9.12		"	10.0		91.2	68-138		1.32	30	
1,1-Dichloropropylene	8.39		"	10.0		83.9	83-133		0.119	30	
1,2,3-Trichlorobenzene	9.36		"	10.0		93.6	76-136		7.31	30	
1,2,3-Trichloropropane	9.47		"	10.0		94.7	77-128		9.17	30	
1,2,4-Trichlorobenzene	9.08		"	10.0		90.8	76-137		4.62	30	
1,2,4-Trimethylbenzene	8.84		"	10.0		88.4	82-132		3.01	30	
1,2-Dibromo-3-chloropropane	9.17		"	10.0		91.7	45-147		19.1	30	
1,2-Dibromoethane	9.37		"	10.0		93.7	83-124		7.88	30	
1,2-Dichlorobenzene	8.97		"	10.0		89.7	79-123		3.06	30	
1,2-Dichloroethane	9.44		"	10.0		94.4	73-132		8.16	30	
1,2-Dichloropropane	9.20		"	10.0		92.0	78-126		1.64	30	
1,3,5-Trimethylbenzene	8.54		"	10.0		85.4	80-131		3.57	30	
1,3-Dichlorobenzene	8.82		"	10.0		88.2	86-122		0.683	30	
1,3-Dichloropropane	9.18		"	10.0		91.8	81-125		7.69	30	
1,4-Dichlorobenzene	8.90		"	10.0		89.0	85-124		1.36	30	
1,4-Dioxane	375		"	210		179	10-349		24.6	30	
2,2-Dichloropropane	9.35		"	10.0		93.5	56-150		1.38	30	
2-Butanone	10.6		"	10.0		106	49-152		26.9	30	



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	Limit	Flag
Batch BK12040 - EPA 5030B											
LCS Dup (BK12040-BSD1)	LCS Dup		Prepared & Analyzed: 11/19/2021								
2-Chlorotoluene	8.49		ug/L	10.0		84.9	79-130		4.38	30	
2-Hexanone	8.78		"	10.0		87.8	51-146		18.3	30	
4-Chlorotoluene	8.68		"	10.0		86.8	79-128		2.62	30	
4-Methyl-2-pentanone	8.64		"	10.0		86.4	57-145		12.5	30	
Acetone	5.60		"	10.0		56.0	14-150		19.4	30	
Acrolein	31.1		"	10.0		311	10-153	High Bias	6.82	30	
Acrylonitrile	9.08		"	10.0		90.8	51-150		11.5	30	
Benzene	9.06		"	10.0		90.6	85-126		1.89	30	
Bromobenzene	8.58		"	10.0		85.8	78-129		0.350	30	
Bromochloromethane	9.64		"	10.0		96.4	77-128		3.70	30	
Bromodichloromethane	9.13		"	10.0		91.3	79-128		3.34	30	
Bromoform	9.87		"	10.0		98.7	78-133		16.6	30	
Bromomethane	5.40		"	10.0		54.0	43-168		6.11	30	
Carbon disulfide	10.2		"	10.0		102	68-146		3.94	30	
Carbon tetrachloride	9.00		"	10.0		90.0	77-141		1.76	30	
Chlorobenzene	9.15		"	10.0		91.5	88-120		1.09	30	
Chloroethane	10.2		"	10.0		102	65-136		2.91	30	
Chloroform	8.96		"	10.0		89.6	82-128		2.03	30	
Chloromethane	9.40		"	10.0		94.0	43-155		2.73	30	
cis-1,2-Dichloroethylene	8.97		"	10.0		89.7	83-129		1.57	30	
cis-1,3-Dichloropropylene	8.98		"	10.0		89.8	80-131		4.79	30	
Cyclohexane	9.02		"	10.0		90.2	63-149		0.883	30	
Dibromochloromethane	9.20		"	10.0		92.0	80-130		6.63	30	
Dibromomethane	9.29		"	10.0		92.9	72-134		8.30	30	
Dichlorodifluoromethane	13.3		"	10.0		133	44-144		0.823	30	
Ethyl Benzene	8.73		"	10.0		87.3	80-131		2.71	30	
Hexachlorobutadiene	9.03		"	10.0		90.3	67-146		3.95	30	
Isopropylbenzene	8.64		"	10.0		86.4	76-140		5.73	30	
Methyl acetate	10.1		"	10.0		101	51-139		10.7	30	
Methyl tert-butyl ether (MTBE)	9.64		"	10.0		96.4	76-135		14.7	30	
Methylcyclohexane	9.06		"	10.0		90.6	72-143		2.94	30	
Methylene chloride	9.33		"	10.0		93.3	55-137		3.82	30	
n-Butylbenzene	9.02		"	10.0		90.2	79-132		1.65	30	
n-Propylbenzene	8.46		"	10.0		84.6	78-133		5.96	30	
o-Xylene	8.90		"	10.0		89.0	78-130		1.78	30	
p- & m- Xylenes	17.9		"	20.0		89.6	77-133		2.64	30	
p-Isopropyltoluene	8.86		"	10.0		88.6	81-136		2.01	30	
sec-Butylbenzene	8.65		"	10.0		86.5	79-137		2.96	30	
Styrene	8.78		"	10.0		87.8	67-132		0.00	30	
tert-Butyl alcohol (TBA)	64.8		"	50.0		130	25-162		34.0	30	Non-dir.
tert-Butylbenzene	8.47		"	10.0		84.7	77-138		3.37	30	
Tetrachloroethylene	5.02		"	10.0		50.2	82-131	Low Bias	2.94	30	
Toluene	8.96		"	10.0		89.6	80-127		2.10	30	
trans-1,2-Dichloroethylene	8.80		"	10.0		88.0	80-132		1.13	30	
trans-1,3-Dichloropropylene	9.34		"	10.0		93.4	78-131		7.79	30	
Trichloroethylene	8.33		"	10.0		83.3	82-128		2.96	30	
Trichlorofluoromethane	9.63		"	10.0		96.3	67-139		0.311	30	
Vinyl acetate	11.6		"	10.0		116	21-90	High Bias	10.0	30	
Vinyl Chloride	10.0		"	10.0		100	58-145		3.72	30	
Surrogate: SURR: 1,2-Dichloroethane-d4	10.4		"	10.0		104	69-130				
Surrogate: SURR: Toluene-d8	9.94		"	10.0		99.4	81-117				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BK12040 - EPA 5030B

LCS Dup (BK12040-BSD1) LCS Dup

Prepared & Analyzed: 11/19/2021

Surrogate: SURR: p-Bromofluorobenzene	9.88		ug/L	10.0		98.8	79-122				



Volatile Analysis Sample Containers

Lab ID	Client Sample ID	Volatile Sample Container
21K0819-01	158-LMW-26	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C
21K0819-02	159-LMW-31	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C





Sample and Data Qualifiers Relating to This Work Order

QR-04	The RPD exceeded control limits for the LCS/LCSD QC.
QL-02	This LCS analyte is outside Laboratory Recovery limits due the analyte behavior using the referenced method. The reference method has certain limitations with respect to analytes of this nature.
J	Detected below the Reporting Limit but greater than or equal to the Method Detection Limit (MDL/LOD) or in the case of a TIC, the result is an estimated concentration.
B	Analyte is found in the associated analysis batch blank. For volatiles, methylene chloride and acetone are common lab contaminants.

Definitions and Other Explanations

*	Analyte is not certified or the state of the samples origination does not offer certification for the Analyte.
ND	NOT DETECTED - the analyte is not detected at the Reported to level (LOQ/RL or LOD/MDL)
RL	REPORTING LIMIT - the minimum reportable value based upon the lowest point in the analyte calibration curve.
LOQ	LIMIT OF QUANTITATION - the minimum concentration of a target analyte that can be reported within a specified degree of confidence. This is the lowest point in an analyte calibration curve that has been subjected to all steps of the processing/analysis and verified to meet defined criteria. This is based upon NELAC 2009 Standards and applies to all analyses.
LOD	LIMIT OF DETECTION - a verified estimate of the minimum concentration of a substance in a given matrix that an analytical process can reliably detect. This is based upon NELAC 2009 Standards and applies to all analyses conducted under the auspices of EPA SW-846.
MDL	METHOD DETECTION LIMIT - a statistically derived estimate of the minimum amount of a substance an analytical system can reliably detect with a 99% confidence that the concentration of the substance is greater than zero. This is based upon 40 CFR Part 136 Appendix B and applies only to EPA 600 and 200 series methods.
Reported to	This indicates that the data for a particular analysis is reported to either the LOD/MDL, or the LOQ/RL. In cases where the "Reported to" is located above the LOD/MDL, any value between this and the LOQ represents an estimated value which is "J" flagged accordingly. This applies to volatile and semi-volatile target compounds only.
NR	Not reported
RPD	Relative Percent Difference
Wet	The data has been reported on an as-received (wet weight) basis
Low Bias	Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit. The data user should take note that this analyte may be biased low but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
High Bias	High Bias flag indicates that the recovery of the flagged analyte is above the laboratory or regulatory upper control limit. The data user should take note that this analyte may be biased high but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
Non-Dir.	Non-dir. flag (Non-Directional Bias) indicates that the Relative Percent Difference (RPD) (a measure of precision) among the MS and MSD data is outside the laboratory or regulatory control limit. This alerts the data user where the MS and MSD are from site-specific samples that the RPD is high due to either non-homogeneous distribution of target analyte between the MS/MSD or indicates poor reproducibility for other reasons.

If EPA SW-846 method 8270 is included herein it is noted that the target compound N-nitrosodiphenylamine (NDPA) decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine (DPA). These results could actually represent 100% DPA, 100% NDPA or some combination of the two. For this reason, York reports the combined result for n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration as Diphenylamine.

If Total PCBs are detected and the target aroclors reported are "Not detected", the Total PCB value is reported due to the presence of either or both Aroclors 1262 and 1268 which are non-target aroclors for some regulatory lists.

2-chloroethylvinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

Certification for pH is no longer offered by NYDOH ELAP.



Semi-Volatile and Volatile analyses are reported down to the LOD/MDL, with values between the LOD/MDL and the LOQ being "J" flagged as estimated results.

For analyses by EPA SW-846-8270D, the Limit of Quantitation (LOQ) reported for benzidine is based upon the lowest standard used for calibration and is not a verified LOQ due to this compound's propensity for oxidative losses during extraction/concentration procedures and non-reproducible chromatographic performance.

Corrective Action: The client sample IDs were revised by Sam Haines on 11/18/21 and a revised COC submitted to the lab.



Field Chain-of-Custody Record

York Analytical Laboratories, Inc. (YORK)'s Standard Terms & Conditions are listed on the back side of this document. This document serves as your written authorization for YORK to proceed with the analyses requested below. Your signature binds you to YORK's Standard Terms & Conditions.

120 Research Drive Stratford, CT 06615 132-02 89th Ave Queens, NY 11418 clientservices@yorklab.com www.yorklab.com 800-306-YORK 800-306-9675

YOUR INFORMATION

Company: **LANGAN ENGINEERING**
Address: **300 KIMBALL DR
PARLISSA, NY**
Phone: **973-5601900**
Contact: **Arcana Boudram**
Email: **aboudram@langan.com**

Report To:

Company: **SAME**
Address: **SAME**
Phone: **SAME**
Contact: **SAME**
Email: **SAME**

Invoice To:

Company: **SAME**
Address: **SAME**
Phone: **SAME**
Contact: **SAME**
Email: **SAME**

YOUR PROJECT NUMBER

100766001

YOUR PROJECT NAME

23-30 BORDEN AVE

YOUR PO#:

Please print clearly and legibly. All information must be complete. Samples will not be logged in and the turn-around-time clock will not begin until any questions by YORK are resolved.

YORK Reg. Comp.

Compared to the following Regulation(s): (please fill in)

CT RCP
CT RCP DQA/DUE
NJDEP Reduced Deliverables
NJDEP SRP HazSite
Other:

Samples From

New York
New Jersey
Connecticut
Pennsylvania
Other:

Matrix Codes

S - soil / solid
GW - groundwater
DW - drinking water
WW - wastewater
O - Oil / Other:

Sample Matrix

GW
GW

Analysis Requested

VOCs
VOCs

Container Description

3 x 40 mL Vials

Sample Identification

158 LMW-26
159 LMW-31

Date/Time Sampled

11/16/01 1140
11/16/01 1415

Preservation: (check all that apply)

HCl ☒ MeOH ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐
ZnAc ☐ Ascorbic Acid ☐ Other ☐

Special Instruction

Field Filtered
Lab to Filter

Comments: Report / EDD: QA Report

Signature: **Arcana Boudram** 11/16/01 19:00
Signature: **Elderson York** 11/17/01 9:00

Signature: **Arcana Boudram** 11/16/01 1900
Signature: **Elderson York** 11/17/01 1835

Signature: **Arcana Boudram** 11/17/01 1835
Signature: **Elderson York** 11/17/01 1835

Signature: **Arcana Boudram** 11/17/01 1835
Signature: **Elderson York** 11/17/01 1835



Technical Report

prepared for:

Langan Engineering & Environmental Services (NJ)

300 Kimball Drive, 4th Floor

Parsipanny NJ, 07054-2172

Attention: Aroona Boodram

Report Date: 12/08/2021

Client Project ID: 100766601

York Project (SDG) No.: 21K1247



CT Cert. No. PH-0723

New Jersey Cert. No. CT005 and NY037

New York Cert. Nos. 10854 and 12058

PA Cert. No. 68-04440

Report Date: 12/08/2021
Client Project ID: 100766601
York Project (SDG) No.: 21K1247

Langan Engineering & Environmental Services (NJ)
300 Kimball Drive, 4th Floor
Parsipanny NJ, 07054-2172
Attention: Aroona Boodram

Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on November 24, 2021 and listed below. The project was identified as your project: **100766601**.

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the customary acceptance requirements for environmental samples except those indicated under the Sample and Analysis Qualifiers section of this report.

All analyses met the method and laboratory standard operating procedure requirements except as indicated by any data flags, the meaning of which are explained in the Sample and Data Qualifiers Relating to This Work Order section of this report and case narrative if applicable.

The results of the analyses, which are all reported on dry weight basis (soils) unless otherwise noted, are detailed in the following pages.

Please contact Client Services at 203.325.1371 with any questions regarding this report.

<u>York Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>
21K1247-01	VC_Control_T0	Water	11/22/2021	11/24/2021
21K1247-02	VC_Treated_T0	Water	11/22/2021	11/24/2021
21K1247-03	TCA_Control_T0	Water	11/22/2021	11/24/2021
21K1247-04	TCA_Treated_T0	Water	11/22/2021	11/24/2021

General Notes for York Project (SDG) No.: 21K1247

1. The RLs and MDLs (Reporting Limit and Method Detection Limit respectively) reported are adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. The RL(REPORTING LIMIT) is based upon the lowest standard utilized for the calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All analyses conducted met method or Laboratory SOP requirements. See the Sample and Data Qualifiers Section for further information.
6. It is noted that no analyses reported herein were subcontracted to another laboratory, unless noted in the report.
7. This report reflects results that relate only to the samples submitted on the attached chain-of-custody form(s) received by York.
8. Analyses conducted at York Analytical Laboratories, Inc. Stratford, CT are indicated by NY Cert. No. 10854; those conducted at York Analytical Laboratories, Inc., Richmond Hill, NY are indicated by NY Cert. No. 12058.

Approved By



Cassie L. Mosher
Laboratory Manager

Date: 12/08/2021





Sample Information

Client Sample ID: VC_Control_T0

York Sample ID: 21K1247-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1247

100766601

Water

November 22, 2021 3:00 pm

11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
71-55-6	1,1,1-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
79-00-5	1,1,2-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
75-34-3	1,1-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
75-35-4	1,1-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
563-58-6	1,1-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	12/06/2021 09:00	12/06/2021 12:51	OC
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
96-18-4	1,2,3-Trichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
106-93-4	1,2-Dibromoethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
95-50-1	1,2-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
107-06-2	1,2-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
78-87-5	1,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
541-73-1	1,3-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
142-28-9	1,3-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
106-46-7	1,4-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC



Sample Information

Client Sample ID: VC_Control_T0

York Sample ID: 21K1247-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1247

100766601

Water

November 22, 2021 3:00 pm

11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
123-91-1	1,4-Dioxane	ND		ug/L	80.0	200	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
594-20-7	2,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
78-93-3	2-Butanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
95-49-8	2-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
591-78-6	2-Hexanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
106-43-4	4-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
108-10-1	4-Methyl-2-pentanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
67-64-1	Acetone	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
107-02-8	Acrolein	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
107-13-1	Acrylonitrile	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
71-43-2	Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
108-86-1	Bromobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
74-97-5	Bromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
75-27-4	Bromodichloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
75-25-2	Bromoform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
74-83-9	Bromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
75-15-0	Carbon disulfide	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
56-23-5	Carbon tetrachloride	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
108-90-7	Chlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
75-00-3	Chloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
67-66-3	Chloroform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
74-87-3	Chloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC

120 RESEARCH DRIVE

STRATFORD, CT 06615



132-02 89th AVENUE

RICHMOND HILL, NY 11418

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Sample Information

Client Sample ID: VC_Control_T0

York Sample ID: 21K1247-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1247

100766601

Water

November 22, 2021 3:00 pm

11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
156-59-2	cis-1,2-Dichloroethylene	237		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
110-82-7	Cyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
124-48-1	Dibromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
74-95-3	Dibromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
100-41-4	Ethyl Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
87-68-3	Hexachlorobutadiene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
98-82-8	Isopropylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
79-20-9	Methyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
108-87-2	Methylcyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
75-09-2	Methylene chloride	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
104-51-8	n-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
103-65-1	n-Propylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
95-47-6	o-Xylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
179601-23-1	p- & m- Xylenes	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
99-87-6	p-Isopropyltoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
135-98-8	sec-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
100-42-5	Styrene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
98-06-6	tert-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC

120 RESEARCH DRIVE

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Sample Information

Client Sample ID: VC_Control_T0

York Sample ID: 21K1247-01

York Project (SDG) No.
21K1247

Client Project ID
100766601

Matrix
Water

Collection Date/Time
November 22, 2021 3:00 pm

Date Received
11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
127-18-4	Tetrachloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
108-88-3	Toluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
79-01-6	Trichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
75-69-4	Trichlorofluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
108-05-4	Vinyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
75-01-4	Vinyl Chloride	381		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 12:51	OC
1330-20-7	Xylenes, Total	ND		ug/L	1.20	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	12/06/2021 09:00	12/06/2021 12:51	OC
Surrogate Recoveries		Result	Acceptance Range								
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	99.1 %	69-130								
2037-26-5	Surrogate: SURR: Toluene-d8	97.5 %	81-117								
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	99.4 %	79-122								



Sample Information

Client Sample ID: VC_Treated_T0

York Sample ID: 21K1247-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1247

100766601

Water

November 22, 2021 3:00 pm

11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
71-55-6	1,1,1-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
79-00-5	1,1,2-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
75-34-3	1,1-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
75-35-4	1,1-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
563-58-6	1,1-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	12/06/2021 09:00	12/06/2021 13:18	OC
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
96-18-4	1,2,3-Trichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
106-93-4	1,2-Dibromoethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
95-50-1	1,2-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
107-06-2	1,2-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
78-87-5	1,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
541-73-1	1,3-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
142-28-9	1,3-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
106-46-7	1,4-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
123-91-1	1,4-Dioxane	ND		ug/L	80.0	200	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC



Sample Information

Client Sample ID: VC_Treated_T0

York Sample ID: 21K1247-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1247

100766601

Water

November 22, 2021 3:00 pm

11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
594-20-7	2,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
78-93-3	2-Butanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
95-49-8	2-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
591-78-6	2-Hexanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
106-43-4	4-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
108-10-1	4-Methyl-2-pentanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
67-64-1	Acetone	25.8		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
107-02-8	Acrolein	61.2		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
107-13-1	Acrylonitrile	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
71-43-2	Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
108-86-1	Bromobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
74-97-5	Bromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
75-27-4	Bromodichloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
75-25-2	Bromoform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
74-83-9	Bromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
75-15-0	Carbon disulfide	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
56-23-5	Carbon tetrachloride	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
108-90-7	Chlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
75-00-3	Chloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
67-66-3	Chloroform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
74-87-3	Chloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
156-59-2	cis-1,2-Dichloroethylene	247		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC

120 RESEARCH DRIVE

STRATFORD, CT 06615



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Sample Information

Client Sample ID: VC_Treated_T0

York Sample ID: 21K1247-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1247

100766601

Water

November 22, 2021 3:00 pm

11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
110-82-7	Cyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
124-48-1	Dibromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
74-95-3	Dibromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
100-41-4	Ethyl Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
87-68-3	Hexachlorobutadiene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
98-82-8	Isopropylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
79-20-9	Methyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
108-87-2	Methylcyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
75-09-2	Methylene chloride	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
104-51-8	n-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
103-65-1	n-Propylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
95-47-6	o-Xylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
179601-23-1	p- & m- Xylenes	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
99-87-6	p-Isopropyltoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
135-98-8	sec-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
100-42-5	Styrene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
98-06-6	tert-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
127-18-4	Tetrachloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC



Sample Information

Client Sample ID: VC_Treated_T0

York Sample ID: 21K1247-02

York Project (SDG) No.

21K1247

Client Project ID

100766601

Matrix

Water

Collection Date/Time

November 22, 2021 3:00 pm

Date Received

11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-88-3	Toluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
79-01-6	Trichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
75-69-4	Trichlorofluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
108-05-4	Vinyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
75-01-4	Vinyl Chloride	542		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:18	OC
1330-20-7	Xylenes, Total	ND		ug/L	1.20	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	12/06/2021 09:00	12/06/2021 13:18	OC
Surrogate Recoveries		Result		Acceptance Range							
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	105 %		69-130							
2037-26-5	Surrogate: SURR: Toluene-d8	101 %		81-117							
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	125 %	S-04	79-122							



Sample Information

Client Sample ID: TCA_Control_T0

York Sample ID: 21K1247-03

York Project (SDG) No.

21K1247

Client Project ID

100766601

Matrix

Water

Collection Date/Time

November 22, 2021 3:00 pm

Date Received

11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
71-55-6	1,1,1-Trichloroethane	399		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
79-00-5	1,1,2-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
75-34-3	1,1-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
75-35-4	1,1-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
563-58-6	1,1-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	12/06/2021 09:00	12/06/2021 13:46	OC
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
96-18-4	1,2,3-Trichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
106-93-4	1,2-Dibromoethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
95-50-1	1,2-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
107-06-2	1,2-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
78-87-5	1,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
541-73-1	1,3-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
142-28-9	1,3-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
106-46-7	1,4-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
123-91-1	1,4-Dioxane	ND		ug/L	80.0	200	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC



Sample Information

Client Sample ID: TCA_Control_T0

York Sample ID: 21K1247-03

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1247

100766601

Water

November 22, 2021 3:00 pm

11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
594-20-7	2,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
78-93-3	2-Butanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
95-49-8	2-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
591-78-6	2-Hexanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
106-43-4	4-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
108-10-1	4-Methyl-2-pentanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
67-64-1	Acetone	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
107-02-8	Acrolein	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
107-13-1	Acrylonitrile	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
71-43-2	Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
108-86-1	Bromobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
74-97-5	Bromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
75-27-4	Bromodichloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
75-25-2	Bromoform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
74-83-9	Bromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
75-15-0	Carbon disulfide	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
56-23-5	Carbon tetrachloride	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
108-90-7	Chlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
75-00-3	Chloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
67-66-3	Chloroform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
74-87-3	Chloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
156-59-2	cis-1,2-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC



Sample Information

Client Sample ID: TCA_Control_T0

York Sample ID: 21K1247-03

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1247

100766601

Water

November 22, 2021 3:00 pm

11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
110-82-7	Cyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
124-48-1	Dibromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
74-95-3	Dibromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
100-41-4	Ethyl Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
87-68-3	Hexachlorobutadiene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
98-82-8	Isopropylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
79-20-9	Methyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
108-87-2	Methylcyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
75-09-2	Methylene chloride	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
104-51-8	n-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
103-65-1	n-Propylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
95-47-6	o-Xylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
179601-23-1	p- & m- Xylenes	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
99-87-6	p-Isopropyltoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
135-98-8	sec-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
100-42-5	Styrene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
98-06-6	tert-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
127-18-4	Tetrachloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC

120 RESEARCH DRIVE

STRATFORD, CT 06615



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Sample Information

Client Sample ID: TCA_Control_T0

York Sample ID: 21K1247-03

York Project (SDG) No.
21K1247

Client Project ID
100766601

Matrix
Water

Collection Date/Time
November 22, 2021 3:00 pm

Date Received
11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-88-3	Toluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
79-01-6	Trichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
75-69-4	Trichlorofluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
108-05-4	Vinyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
75-01-4	Vinyl Chloride	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 13:46	OC
1330-20-7	Xylenes, Total	ND		ug/L	1.20	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	12/06/2021 09:00	12/06/2021 13:46	OC
Surrogate Recoveries		Result	Acceptance Range								
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	102 %	69-130								
2037-26-5	Surrogate: SURR: Toluene-d8	98.0 %	81-117								
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	98.6 %	79-122								



Sample Information

Client Sample ID: TCA_Treated_T0

York Sample ID: 21K1247-04

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1247

100766601

Water

November 22, 2021 3:00 pm

11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
71-55-6	1,1,1-Trichloroethane	143		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
79-00-5	1,1,2-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
75-34-3	1,1-Dichloroethane	6.20	J	ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
75-35-4	1,1-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
563-58-6	1,1-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	12/06/2021 09:00	12/06/2021 14:14	OC
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
96-18-4	1,2,3-Trichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
106-93-4	1,2-Dibromoethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
95-50-1	1,2-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
107-06-2	1,2-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
78-87-5	1,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
541-73-1	1,3-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
142-28-9	1,3-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
106-46-7	1,4-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
123-91-1	1,4-Dioxane	ND		ug/L	80.0	200	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC

120 RESEARCH DRIVE

STRATFORD, CT 06615



132-02 89th AVENUE

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Sample Information

Client Sample ID: TCA_Treated_T0

York Sample ID: 21K1247-04

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1247

100766601

Water

November 22, 2021 3:00 pm

11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
594-20-7	2,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
78-93-3	2-Butanone	23.3		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
95-49-8	2-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
591-78-6	2-Hexanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
106-43-4	4-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
108-10-1	4-Methyl-2-pentanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
67-64-1	Acetone	28.0		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
107-02-8	Acrolein	107		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
107-13-1	Acrylonitrile	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
71-43-2	Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
108-86-1	Bromobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
74-97-5	Bromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
75-27-4	Bromodichloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
75-25-2	Bromoform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
74-83-9	Bromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
75-15-0	Carbon disulfide	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
56-23-5	Carbon tetrachloride	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
108-90-7	Chlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
75-00-3	Chloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
67-66-3	Chloroform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
74-87-3	Chloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
156-59-2	cis-1,2-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC



Sample Information

Client Sample ID: TCA_Treated_T0

York Sample ID: 21K1247-04

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1247

100766601

Water

November 22, 2021 3:00 pm

11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
110-82-7	Cyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
124-48-1	Dibromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
74-95-3	Dibromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
100-41-4	Ethyl Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
87-68-3	Hexachlorobutadiene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
98-82-8	Isopropylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
79-20-9	Methyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
108-87-2	Methylcyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
75-09-2	Methylene chloride	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
104-51-8	n-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
103-65-1	n-Propylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
95-47-6	o-Xylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
179601-23-1	p- & m- Xylenes	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
99-87-6	p-Isopropyltoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
135-98-8	sec-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
100-42-5	Styrene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
98-06-6	tert-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
127-18-4	Tetrachloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC

120 RESEARCH DRIVE

STRATFORD, CT 06615



132-02 89th AVENUE

RICHMOND HILL, NY 11418

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Sample Information

Client Sample ID: TCA_Treated_T0

York Sample ID: 21K1247-04

York Project (SDG) No.

21K1247

Client Project ID

100766601

Matrix

Water

Collection Date/Time

November 22, 2021 3:00 pm

Date Received

11/24/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-88-3	Toluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
79-01-6	Trichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
75-69-4	Trichlorofluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
108-05-4	Vinyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
75-01-4	Vinyl Chloride	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:14	OC
1330-20-7	Xylenes, Total	ND		ug/L	1.20	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	12/06/2021 09:00	12/06/2021 14:14	OC
Surrogate Recoveries		Result		Acceptance Range							
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	107 %		69-130							
2037-26-5	Surrogate: SURR: Toluene-d8	104 %		81-117							
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	144 %	S-04	79-122							



Analytical Batch Summary

Batch ID: BL11434

Preparation Method: EPA 5030B

Prepared By: OC

YORK Sample ID	Client Sample ID	Preparation Date
21K1247-01	VC_Control_T0	12/06/21
21K1247-02	VC_Treated_T0	12/06/21
21K1247-03	TCA_Control_T0	12/06/21
21K1247-04	TCA_Treated_T0	12/06/21
BL11434-BLK1	Blank	12/06/21
BL11434-BS1	LCS	12/06/21
BL11434-BSD1	LCS Dup	12/06/21



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BL11434 - EPA 5030B

Blank (BL11434-BLK1)	Blank	Prepared & Analyzed: 12/06/2021									
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L								
1,1,1-Trichloroethane	ND	0.500	"								
1,1,2,2-Tetrachloroethane	ND	0.500	"								
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.500	"								
1,1,2-Trichloroethane	ND	0.500	"								
1,1-Dichloroethane	ND	0.500	"								
1,1-Dichloroethylene	ND	0.500	"								
1,1-Dichloropropylene	ND	0.500	"								
1,2,3-Trichlorobenzene	ND	0.500	"								
1,2,3-Trichloropropane	ND	0.500	"								
1,2,4-Trichlorobenzene	ND	0.500	"								
1,2,4-Trimethylbenzene	ND	0.500	"								
1,2-Dibromo-3-chloropropane	ND	0.500	"								
1,2-Dibromoethane	ND	0.500	"								
1,2-Dichlorobenzene	ND	0.500	"								
1,2-Dichloroethane	ND	0.500	"								
1,2-Dichloropropane	ND	0.500	"								
1,3,5-Trimethylbenzene	ND	0.500	"								
1,3-Dichlorobenzene	ND	0.500	"								
1,3-Dichloropropane	ND	0.500	"								
1,4-Dichlorobenzene	ND	0.500	"								
1,4-Dioxane	ND	80.0	"								
2,2-Dichloropropane	ND	0.500	"								
2-Butanone	ND	0.500	"								
2-Chlorotoluene	ND	0.500	"								
2-Hexanone	ND	0.500	"								
4-Chlorotoluene	ND	0.500	"								
4-Methyl-2-pentanone	ND	0.500	"								
Acetone	ND	2.00	"								
Acrolein	ND	0.500	"								
Acrylonitrile	ND	0.500	"								
Benzene	ND	0.500	"								
Bromobenzene	ND	0.500	"								
Bromochloromethane	ND	0.500	"								
Bromodichloromethane	ND	0.500	"								
Bromoform	ND	0.500	"								
Bromomethane	ND	0.500	"								
Carbon disulfide	ND	0.500	"								
Carbon tetrachloride	ND	0.500	"								
Chlorobenzene	ND	0.500	"								
Chloroethane	ND	0.500	"								
Chloroform	ND	0.500	"								
Chloromethane	ND	0.500	"								
cis-1,2-Dichloroethylene	ND	0.500	"								
cis-1,3-Dichloropropylene	ND	0.500	"								
Cyclohexane	ND	0.500	"								
Dibromochloromethane	ND	0.500	"								
Dibromomethane	ND	0.500	"								
Dichlorodifluoromethane	ND	0.500	"								
Ethyl Benzene	ND	0.500	"								



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BL11434 - EPA 5030B

Blank (BL11434-BLK1)	Blank	Prepared & Analyzed: 12/06/2021									
Hexachlorobutadiene	ND	0.500	ug/L								
Isopropylbenzene	ND	0.500	"								
Methyl acetate	ND	0.500	"								
Methyl tert-butyl ether (MTBE)	ND	0.500	"								
Methylcyclohexane	ND	0.500	"								
Methylene chloride	ND	2.00	"								
n-Butylbenzene	ND	0.500	"								
n-Propylbenzene	ND	0.500	"								
o-Xylene	ND	0.500	"								
p- & m- Xylenes	ND	1.00	"								
p-Isopropyltoluene	ND	0.500	"								
sec-Butylbenzene	ND	0.500	"								
Styrene	ND	0.500	"								
tert-Butyl alcohol (TBA)	ND	1.00	"								
tert-Butylbenzene	ND	0.500	"								
Tetrachloroethylene	ND	0.500	"								
Toluene	ND	0.500	"								
trans-1,2-Dichloroethylene	ND	0.500	"								
trans-1,3-Dichloropropylene	ND	0.500	"								
Trichloroethylene	ND	0.500	"								
Trichlorofluoromethane	ND	0.500	"								
Vinyl acetate	ND	0.500	"								
Vinyl Chloride	ND	0.500	"								
Xylenes, Total	ND	1.50	"								
Surrogate: SURR: 1,2-Dichloroethane-d4	49.1		"	50.0		98.2	69-130				
Surrogate: SURR: Toluene-d8	49.3		"	50.0		98.6	81-117				
Surrogate: SURR: p-Bromofluorobenzene	50.5		"	50.0		101	79-122				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BL11434 - EPA 5030B											
LCS (BL11434-BS1)	LCS		Prepared & Analyzed: 12/06/2021								
1,1,1,2-Tetrachloroethane	44.5		ug/L	50.0		89.0	82-126				
1,1,1-Trichloroethane	45.3		"	50.0		90.5	78-136				
1,1,2,2-Tetrachloroethane	44.4		"	50.0		88.9	76-129				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	51.9		"	50.0		104	54-165				
1,1,2-Trichloroethane	43.0		"	50.0		85.9	82-123				
1,1-Dichloroethane	44.4		"	50.0		88.7	82-129				
1,1-Dichloroethylene	52.3		"	50.0		105	68-138				
1,1-Dichloropropylene	42.3		"	50.0		84.5	83-133				
1,2,3-Trichlorobenzene	43.7		"	50.0		87.3	76-136				
1,2,3-Trichloropropane	43.7		"	50.0		87.4	77-128				
1,2,4-Trichlorobenzene	44.7		"	50.0		89.5	76-137				
1,2,4-Trimethylbenzene	45.2		"	50.0		90.5	82-132				
1,2-Dibromo-3-chloropropane	43.1		"	50.0		86.3	45-147				
1,2-Dibromoethane	44.6		"	50.0		89.3	83-124				
1,2-Dichlorobenzene	44.9		"	50.0		89.7	79-123				
1,2-Dichloroethane	44.1		"	50.0		88.3	73-132				
1,2-Dichloropropane	44.8		"	50.0		89.5	78-126				
1,3,5-Trimethylbenzene	45.0		"	50.0		90.0	80-131				
1,3-Dichlorobenzene	45.0		"	50.0		90.0	86-122				
1,3-Dichloropropane	42.8		"	50.0		85.7	81-125				
1,4-Dichlorobenzene	45.0		"	50.0		89.9	85-124				
1,4-Dioxane	594		"	1050		56.6	10-349				
2,2-Dichloropropane	45.6		"	50.0		91.2	56-150				
2-Butanone	41.6		"	50.0		83.3	49-152				
2-Chlorotoluene	46.2		"	50.0		92.4	79-130				
2-Hexanone	37.7		"	50.0		75.5	51-146				
4-Chlorotoluene	46.0		"	50.0		91.9	79-128				
4-Methyl-2-pentanone	41.8		"	50.0		83.7	57-145				
Acetone	24.5		"	50.0		49.1	14-150				
Acrolein	90.3		"	50.0		181	10-153	High Bias			
Acrylonitrile	43.0		"	50.0		86.0	51-150				
Benzene	44.8		"	50.0		89.5	85-126				
Bromobenzene	44.0		"	50.0		88.0	78-129				
Bromochloromethane	43.8		"	50.0		87.5	77-128				
Bromodichloromethane	44.0		"	50.0		88.0	79-128				
Bromoform	46.1		"	50.0		92.1	78-133				
Bromomethane	61.2		"	50.0		122	43-168				
Carbon disulfide	48.9		"	50.0		97.7	68-146				
Carbon tetrachloride	46.0		"	50.0		91.9	77-141				
Chlorobenzene	47.4		"	50.0		94.9	88-120				
Chloroethane	52.8		"	50.0		106	65-136				
Chloroform	44.9		"	50.0		89.8	82-128				
Chloromethane	63.1		"	50.0		126	43-155				
cis-1,2-Dichloroethylene	44.1		"	50.0		88.2	83-129				
cis-1,3-Dichloropropylene	44.6		"	50.0		89.2	80-131				
Cyclohexane	42.9		"	50.0		85.8	63-149				
Dibromochloromethane	43.4		"	50.0		86.9	80-130				
Dibromomethane	42.7		"	50.0		85.5	72-134				
Dichlorodifluoromethane	89.6		"	50.0		179	44-144	High Bias			
Ethyl Benzene	45.5		"	50.0		90.9	80-131				
Hexachlorobutadiene	44.5		"	50.0		89.1	67-146				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BL11434 - EPA 5030B

LCS (BL11434-BS1)	LCS	Prepared & Analyzed: 12/06/2021									
Isopropylbenzene	47.4	ug/L	50.0	94.9	76-140						
Methyl acetate	35.6	"	50.0	71.1	51-139						
Methyl tert-butyl ether (MTBE)	44.2	"	50.0	88.4	76-135						
Methylcyclohexane	42.0	"	50.0	83.9	72-143						
Methylene chloride	41.9	"	50.0	83.8	55-137						
n-Butylbenzene	44.9	"	50.0	89.8	79-132						
n-Propylbenzene	46.0	"	50.0	92.1	78-133						
o-Xylene	46.8	"	50.0	93.7	78-130						
p- & m- Xylenes	92.1	"	100	92.1	77-133						
p-Isopropyltoluene	46.1	"	50.0	92.1	81-136						
sec-Butylbenzene	45.9	"	50.0	91.7	79-137						
Styrene	45.2	"	50.0	90.4	67-132						
tert-Butyl alcohol (TBA)	201	"	250	80.4	25-162						
tert-Butylbenzene	46.4	"	50.0	92.8	77-138						
Tetrachloroethylene	36.7	"	50.0	73.4	82-131	Low Bias					
Toluene	44.7	"	50.0	89.4	80-127						
trans-1,2-Dichloroethylene	45.8	"	50.0	91.7	80-132						
trans-1,3-Dichloropropylene	44.2	"	50.0	88.4	78-131						
Trichloroethylene	41.9	"	50.0	83.7	82-128						
Trichlorofluoromethane	55.0	"	50.0	110	67-139						
Vinyl acetate	42.0	"	50.0	83.9	21-90						
Vinyl Chloride	57.8	"	50.0	116	58-145						
Surrogate: SURR: 1,2-Dichloroethane-d4	49.5	"	50.0	99.0	69-130						
Surrogate: SURR: Toluene-d8	49.9	"	50.0	99.7	81-117						
Surrogate: SURR: p-Bromofluorobenzene	50.5	"	50.0	101	79-122						

LCS Dup (BL11434-BS1)	LCS Dup	Prepared & Analyzed: 12/06/2021									
1,1,1,2-Tetrachloroethane	47.6	ug/L	50.0	95.1	82-126	6.67	30				
1,1,1-Trichloroethane	48.1	"	50.0	96.2	78-136	6.08	30				
1,1,2,2-Tetrachloroethane	48.0	"	50.0	96.0	76-129	7.68	30				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	49.3	"	50.0	98.6	54-165	5.22	30				
1,1,2-Trichloroethane	46.2	"	50.0	92.3	82-123	7.20	30				
1,1-Dichloroethane	48.5	"	50.0	97.0	82-129	8.88	30				
1,1-Dichloroethylene	44.0	"	50.0	88.0	68-138	17.2	30				
1,1-Dichloropropylene	45.5	"	50.0	91.0	83-133	7.36	30				
1,2,3-Trichlorobenzene	46.7	"	50.0	93.4	76-136	6.75	30				
1,2,3-Trichloropropane	46.2	"	50.0	92.3	77-128	5.52	30				
1,2,4-Trichlorobenzene	48.2	"	50.0	96.4	76-137	7.45	30				
1,2,4-Trimethylbenzene	48.6	"	50.0	97.2	82-132	7.20	30				
1,2-Dibromo-3-chloropropane	48.0	"	50.0	96.1	45-147	10.8	30				
1,2-Dibromoethane	48.0	"	50.0	96.1	83-124	7.29	30				
1,2-Dichlorobenzene	47.6	"	50.0	95.1	79-123	5.86	30				
1,2-Dichloroethane	47.1	"	50.0	94.3	73-132	6.60	30				
1,2-Dichloropropane	48.3	"	50.0	96.6	78-126	7.63	30				
1,3,5-Trimethylbenzene	48.4	"	50.0	96.7	80-131	7.13	30				
1,3-Dichlorobenzene	47.8	"	50.0	95.6	86-122	6.01	30				
1,3-Dichloropropane	46.3	"	50.0	92.6	81-125	7.72	30				
1,4-Dichlorobenzene	47.6	"	50.0	95.1	85-124	5.58	30				
1,4-Dioxane	661	"	1050	62.9	10-349	10.6	30				
2,2-Dichloropropane	50.0	"	50.0	99.9	56-150	9.10	30				
2-Butanone	43.8	"	50.0	87.7	49-152	5.10	30				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BL11434 - EPA 5030B											
LCS Dup (BL11434-BSD1)	LCS Dup		Prepared & Analyzed: 12/06/2021								
2-Chlorotoluene	48.8		ug/L	50.0		97.5	79-130		5.33	30	
2-Hexanone	41.4		"	50.0		82.9	51-146		9.40	30	
4-Chlorotoluene	49.0		"	50.0		98.1	79-128		6.44	30	
4-Methyl-2-pentanone	46.0		"	50.0		91.9	57-145		9.38	30	
Acetone	24.2		"	50.0		48.4	14-150		1.31	30	
Acrolein	92.4		"	50.0		185	10-153	High Bias	2.23	30	
Acrylonitrile	47.3		"	50.0		94.7	51-150		9.56	30	
Benzene	48.4		"	50.0		96.8	85-126		7.79	30	
Bromobenzene	47.0		"	50.0		94.0	78-129		6.60	30	
Bromochloromethane	48.4		"	50.0		96.7	77-128		9.97	30	
Bromodichloromethane	47.3		"	50.0		94.6	79-128		7.25	30	
Bromoform	49.3		"	50.0		98.7	78-133		6.85	30	
Bromomethane	57.4		"	50.0		115	43-168		6.34	30	
Carbon disulfide	54.0		"	50.0		108	68-146		9.97	30	
Carbon tetrachloride	49.0		"	50.0		97.9	77-141		6.30	30	
Chlorobenzene	51.1		"	50.0		102	88-120		7.37	30	
Chloroethane	49.8		"	50.0		99.5	65-136		5.95	30	
Chloroform	48.5		"	50.0		97.0	82-128		7.66	30	
Chloromethane	58.1		"	50.0		116	43-155		8.26	30	
cis-1,2-Dichloroethylene	48.1		"	50.0		96.2	83-129		8.67	30	
cis-1,3-Dichloropropylene	48.5		"	50.0		97.0	80-131		8.38	30	
Cyclohexane	47.0		"	50.0		94.1	63-149		9.18	30	
Dibromochloromethane	47.1		"	50.0		94.2	80-130		8.06	30	
Dibromomethane	46.5		"	50.0		93.1	72-134		8.51	30	
Dichlorodifluoromethane	81.6		"	50.0		163	44-144	High Bias	9.32	30	
Ethyl Benzene	48.8		"	50.0		97.5	80-131		6.96	30	
Hexachlorobutadiene	48.0		"	50.0		96.0	67-146		7.48	30	
Isopropylbenzene	50.2		"	50.0		100	76-140		5.75	30	
Methyl acetate	43.8		"	50.0		87.7	51-139		20.9	30	
Methyl tert-butyl ether (MTBE)	48.5		"	50.0		97.1	76-135		9.40	30	
Methylcyclohexane	48.2		"	50.0		96.3	72-143		13.8	30	
Methylene chloride	48.5		"	50.0		97.1	55-137		14.7	30	
n-Butylbenzene	47.6		"	50.0		95.2	79-132		5.82	30	
n-Propylbenzene	48.5		"	50.0		97.0	78-133		5.18	30	
o-Xylene	50.3		"	50.0		101	78-130		7.07	30	
p- & m- Xylenes	98.2		"	100		98.2	77-133		6.48	30	
p-Isopropyltoluene	49.1		"	50.0		98.2	81-136		6.35	30	
sec-Butylbenzene	48.8		"	50.0		97.7	79-137		6.29	30	
Styrene	48.3		"	50.0		96.6	67-132		6.67	30	
tert-Butyl alcohol (TBA)	232		"	250		92.6	25-162		14.1	30	
tert-Butylbenzene	49.4		"	50.0		98.9	77-138		6.28	30	
Tetrachloroethylene	39.3		"	50.0		78.6	82-131	Low Bias	6.79	30	
Toluene	47.9		"	50.0		95.8	80-127		6.85	30	
trans-1,2-Dichloroethylene	50.8		"	50.0		102	80-132		10.3	30	
trans-1,3-Dichloropropylene	47.8		"	50.0		95.5	78-131		7.79	30	
Trichloroethylene	47.9		"	50.0		95.9	82-128		13.5	30	
Trichlorofluoromethane	51.9		"	50.0		104	67-139		5.82	30	
Vinyl acetate	44.9		"	50.0		89.8	21-90		6.75	30	
Vinyl Chloride	54.1		"	50.0		108	58-145		6.51	30	
Surrogate: SURR: 1,2-Dichloroethane-d4	49.2		"	50.0		98.4	69-130				
Surrogate: SURR: Toluene-d8	49.6		"	50.0		99.2	81-117				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BL11434 - EPA 5030B

LCS Dup (BL11434-BSD1) **LCS Dup**

Prepared & Analyzed: 12/06/2021

Surrogate: <i>SURR: p-Bromofluorobenzene</i>	50.6		ug/L	50.0		101	79-122				



Volatile Analysis Sample Containers

Lab ID	Client Sample ID	Volatile Sample Container
21K1247-01	VC_Control_T0	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C
21K1247-02	VC_Treated_T0	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C
21K1247-03	TCA_Control_T0	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C
21K1247-04	TCA_Treated_T0	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C



Sample and Data Qualifiers Relating to This Work Order

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QL-02	This LCS analyte is outside Laboratory Recovery limits due the analyte behavior using the referenced method. The reference method has certain limitations with respect to analytes of this nature.
J	Detected below the Reporting Limit but greater than or equal to the Method Detection Limit (MDL/LOD) or in the case of a TIC, the result is an estimated concentration.

Definitions and Other Explanations

*	Analyte is not certified or the state of the samples origination does not offer certification for the Analyte.
ND	NOT DETECTED - the analyte is not detected at the Reported to level (LOQ/RL or LOD/MDL)
RL	REPORTING LIMIT - the minimum reportable value based upon the lowest point in the analyte calibration curve.
LOQ	LIMIT OF QUANTITATION - the minimum concentration of a target analyte that can be reported within a specified degree of confidence. This is the lowest point in an analyte calibration curve that has been subjected to all steps of the processing/analysis and verified to meet defined criteria. This is based upon NELAC 2009 Standards and applies to all analyses.
LOD	LIMIT OF DETECTION - a verified estimate of the minimum concentration of a substance in a given matrix that an analytical process can reliably detect. This is based upon NELAC 2009 Standards and applies to all analyses conducted under the auspices of EPA SW-846.
MDL	METHOD DETECTION LIMIT - a statistically derived estimate of the minimum amount of a substance an analytical system can reliably detect with a 99% confidence that the concentration of the substance is greater than zero. This is based upon 40 CFR Part 136 Appendix B and applies only to EPA 600 and 200 series methods.
Reported to	This indicates that the data for a particular analysis is reported to either the LOD/MDL, or the LOQ/RL. In cases where the "Reported to" is located above the LOD/MDL, any value between this and the LOQ represents an estimated value which is "J" flagged accordingly. This applies to volatile and semi-volatile target compounds only.
NR	Not reported
RPD	Relative Percent Difference
Wet	The data has been reported on an as-received (wet weight) basis
Low Bias	Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit. The data user should take note that this analyte may be biased low but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
High Bias	High Bias flag indicates that the recovery of the flagged analyte is above the laboratory or regulatory upper control limit. The data user should take note that this analyte may be biased high but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
Non-Dir.	Non-dir. flag (Non-Directional Bias) indicates that the Relative Percent Difference (RPD) (a measure of precision) among the MS and MSD data is outside the laboratory or regulatory control limit. This alerts the data user where the MS and MSD are from site-specific samples that the RPD is high due to either non-homogeneous distribution of target analyte between the MS/MSD or indicates poor reproducibility for other reasons.

If EPA SW-846 method 8270 is included herein it is noted that the target compound N-nitrosodiphenylamine (NDPA) decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine (DPA). These results could actually represent 100% DPA, 100% NDPA or some combination of the two. For this reason, York reports the combined result for n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration as Diphenylamine.

If Total PCBs are detected and the target aroclors reported are "Not detected", the Total PCB value is reported due to the presence of either or both Aroclors 1262 and 1268 which are non-target aroclors for some regulatory lists.

2-chloroethylvinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

Certification for pH is no longer offered by NYDOH ELAP.

Semi-Volatile and Volatile analyses are reported down to the LOD/MDL, with values between the LOD/MDL and the LOQ being "J" flagged as estimated results.



For analyses by EPA SW-846-8270D, the Limit of Quantitation (LOQ) reported for benzidine is based upon the lowest standard used for calibration and is not a verified LOQ due to this compound's propensity for oxidative losses during extraction/concentration procedures and non-reproducible chromatographic performance.





Technical Report

prepared for:

Langan Engineering & Environmental Services (NJ)

300 Kimball Drive, 4th Floor

Parsipanny NJ, 07054-2172

Attention: Aroona Boodram

Report Date: 12/08/2021

Client Project ID: 100766601

York Project (SDG) No.: 21K1335



CT Cert. No. PH-0723

New Jersey Cert. No. CT005 and NY037

New York Cert. Nos. 10854 and 12058

PA Cert. No. 68-04440

Report Date: 12/08/2021
Client Project ID: 100766601
York Project (SDG) No.: 21K1335

Langan Engineering & Environmental Services (NJ)
300 Kimball Drive, 4th Floor
Parsipanny NJ, 07054-2172
Attention: Aroona Boodram

Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on November 29, 2021 and listed below. The project was identified as your project: **100766601**.

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the customary acceptance requirements for environmental samples except those indicated under the Sample and Analysis Qualifiers section of this report.

All analyses met the method and laboratory standard operating procedure requirements except as indicated by any data flags, the meaning of which are explained in the Sample and Data Qualifiers Relating to This Work Order section of this report and case narrative if applicable.

The results of the analyses, which are all reported on dry weight basis (soils) unless otherwise noted, are detailed in the following pages.

Please contact Client Services at 203.325.1371 with any questions regarding this report.

<u>York Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>
21K1335-01	TCA_control_T1	Water	11/29/2021	11/29/2021
21K1335-02	TCA_treated_T1	Water	11/29/2021	11/29/2021
21K1335-03	VC_control_T1	Water	11/29/2021	11/29/2021
21K1335-04	VC_treated_T1	Water	11/29/2021	11/29/2021

General Notes for York Project (SDG) No.: 21K1335

1. The RLs and MDLs (Reporting Limit and Method Detection Limit respectively) reported are adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. The RL(REPORTING LIMIT) is based upon the lowest standard utilized for the calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All analyses conducted met method or Laboratory SOP requirements. See the Sample and Data Qualifiers Section for further information.
6. It is noted that no analyses reported herein were subcontracted to another laboratory, unless noted in the report.
7. This report reflects results that relate only to the samples submitted on the attached chain-of-custody form(s) received by York.
8. Analyses conducted at York Analytical Laboratories, Inc. Stratford, CT are indicated by NY Cert. No. 10854; those conducted at York Analytical Laboratories, Inc., Richmond Hill, NY are indicated by NY Cert. No. 12058.

Approved By



Cassie L. Mosher
Laboratory Manager

Date: 12/08/2021





Sample Information

Client Sample ID: TCA_control_T1

York Sample ID: 21K1335-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1335

100766601

Water

November 29, 2021 12:00 pm

11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
71-55-6	1,1,1-Trichloroethane	349		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
79-00-5	1,1,2-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
75-34-3	1,1-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
75-35-4	1,1-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
563-58-6	1,1-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	12/06/2021 09:00	12/06/2021 14:41	OC
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
96-18-4	1,2,3-Trichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
106-93-4	1,2-Dibromoethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
95-50-1	1,2-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
107-06-2	1,2-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
78-87-5	1,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
541-73-1	1,3-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
142-28-9	1,3-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
106-46-7	1,4-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC



Sample Information

Client Sample ID: TCA_control_T1

York Sample ID: 21K1335-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1335

100766601

Water

November 29, 2021 12:00 pm

11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
123-91-1	1,4-Dioxane	ND		ug/L	80.0	200	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
594-20-7	2,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
78-93-3	2-Butanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
95-49-8	2-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
591-78-6	2-Hexanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
106-43-4	4-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
108-10-1	4-Methyl-2-pentanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
67-64-1	Acetone	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
107-02-8	Acrolein	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
107-13-1	Acrylonitrile	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
71-43-2	Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
108-86-1	Bromobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
74-97-5	Bromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
75-27-4	Bromodichloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
75-25-2	Bromoform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
74-83-9	Bromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
75-15-0	Carbon disulfide	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
56-23-5	Carbon tetrachloride	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
108-90-7	Chlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
75-00-3	Chloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
67-66-3	Chloroform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
74-87-3	Chloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC

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Sample Information

Client Sample ID: TCA_control_T1

York Sample ID: 21K1335-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1335

100766601

Water

November 29, 2021 12:00 pm

11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
156-59-2	cis-1,2-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
110-82-7	Cyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
124-48-1	Dibromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
74-95-3	Dibromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
100-41-4	Ethyl Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
87-68-3	Hexachlorobutadiene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
98-82-8	Isopropylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
79-20-9	Methyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
108-87-2	Methylcyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
75-09-2	Methylene chloride	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
104-51-8	n-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
103-65-1	n-Propylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
95-47-6	o-Xylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
179601-23-1	p- & m- Xylenes	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
99-87-6	p-Isopropyltoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
135-98-8	sec-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
100-42-5	Styrene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
98-06-6	tert-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC

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Sample Information

Client Sample ID: TCA_control_T1

York Sample ID: 21K1335-01

York Project (SDG) No.
21K1335

Client Project ID
100766601

Matrix
Water

Collection Date/Time
November 29, 2021 12:00 pm

Date Received
11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
127-18-4	Tetrachloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
108-88-3	Toluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
79-01-6	Trichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
75-69-4	Trichlorofluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
108-05-4	Vinyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
75-01-4	Vinyl Chloride	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 14:41	OC
1330-20-7	Xylenes, Total	ND		ug/L	1.20	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	12/06/2021 09:00	12/06/2021 14:41	OC
Surrogate Recoveries		Result	Acceptance Range								
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	101 %	69-130								
2037-26-5	Surrogate: SURR: Toluene-d8	97.6 %	81-117								
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	97.9 %	79-122								



Sample Information

Client Sample ID: TCA_treated_T1

York Sample ID: 21K1335-02

York Project (SDG) No.

21K1335

Client Project ID

100766601

Matrix

Water

Collection Date/Time

November 29, 2021 12:00 pm

Date Received

11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
71-55-6	1,1,1-Trichloroethane	291		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
79-00-5	1,1,2-Trichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
75-34-3	1,1-Dichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
75-35-4	1,1-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
563-58-6	1,1-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	12/07/2021 12:30	12/07/2021 23:01	OC
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
96-18-4	1,2,3-Trichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
106-93-4	1,2-Dibromoethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
95-50-1	1,2-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
107-06-2	1,2-Dichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
78-87-5	1,2-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
541-73-1	1,3-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
142-28-9	1,3-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
106-46-7	1,4-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
123-91-1	1,4-Dioxane	ND		ug/L	200	500	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC

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Sample Information

Client Sample ID: TCA_treated_T1

York Sample ID: 21K1335-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1335

100766601

Water

November 29, 2021 12:00 pm

11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
594-20-7	2,2-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
78-93-3	2-Butanone	149		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
95-49-8	2-Chlorotoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
591-78-6	2-Hexanone	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
106-43-4	4-Chlorotoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
108-10-1	4-Methyl-2-pentanone	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
67-64-1	Acetone	62.4		ug/L	5.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
107-02-8	Acrolein	116		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
107-13-1	Acrylonitrile	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
71-43-2	Benzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
108-86-1	Bromobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
74-97-5	Bromochloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
75-27-4	Bromodichloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
75-25-2	Bromoform	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
74-83-9	Bromomethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
75-15-0	Carbon disulfide	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
56-23-5	Carbon tetrachloride	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
108-90-7	Chlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
75-00-3	Chloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
67-66-3	Chloroform	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
74-87-3	Chloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
156-59-2	cis-1,2-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC



Sample Information

Client Sample ID: TCA_treated_T1

York Sample ID: 21K1335-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1335

100766601

Water

November 29, 2021 12:00 pm

11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
110-82-7	Cyclohexane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
124-48-1	Dibromochloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
74-95-3	Dibromomethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
75-71-8	Dichlorodifluoromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
100-41-4	Ethyl Benzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
87-68-3	Hexachlorobutadiene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
98-82-8	Isopropylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
79-20-9	Methyl acetate	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
108-87-2	Methylcyclohexane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
75-09-2	Methylene chloride	ND		ug/L	5.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
104-51-8	n-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
103-65-1	n-Propylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
95-47-6	o-Xylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
179601-23-1	p- & m- Xylenes	ND		ug/L	2.50	50.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
99-87-6	p-Isopropyltoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
135-98-8	sec-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
100-42-5	Styrene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	2.50	50.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
98-06-6	tert-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
127-18-4	Tetrachloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC

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Sample Information

Client Sample ID: TCA_treated_T1

York Sample ID: 21K1335-02

York Project (SDG) No.

21K1335

Client Project ID

100766601

Matrix

Water

Collection Date/Time

November 29, 2021 12:00 pm

Date Received

11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-88-3	Toluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
79-01-6	Trichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
75-69-4	Trichlorofluoromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
108-05-4	Vinyl acetate	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
75-01-4	Vinyl Chloride	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:01	OC
1330-20-7	Xylenes, Total	ND		ug/L	3.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	12/07/2021 12:30	12/07/2021 23:01	OC
Surrogate Recoveries		Result		Acceptance Range							
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	105 %		69-130							
2037-26-5	Surrogate: SURR: Toluene-d8	106 %		81-117							
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	138 %	S-04	79-122							



Sample Information

Client Sample ID: VC_control_T1

York Sample ID: 21K1335-03

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1335

100766601

Water

November 29, 2021 12:00 pm

11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
71-55-6	1,1,1-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
79-00-5	1,1,2-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
75-34-3	1,1-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
75-35-4	1,1-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
563-58-6	1,1-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	12/06/2021 09:00	12/06/2021 15:36	OC
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
96-18-4	1,2,3-Trichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
106-93-4	1,2-Dibromoethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
95-50-1	1,2-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
107-06-2	1,2-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
78-87-5	1,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
541-73-1	1,3-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
142-28-9	1,3-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
106-46-7	1,4-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
123-91-1	1,4-Dioxane	ND		ug/L	80.0	200	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC

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Sample Information

Client Sample ID: VC_control_T1

York Sample ID: 21K1335-03

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1335

100766601

Water

November 29, 2021 12:00 pm

11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
594-20-7	2,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
78-93-3	2-Butanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
95-49-8	2-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
591-78-6	2-Hexanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
106-43-4	4-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
108-10-1	4-Methyl-2-pentanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
67-64-1	Acetone	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
107-02-8	Acrolein	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
107-13-1	Acrylonitrile	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
71-43-2	Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
108-86-1	Bromobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
74-97-5	Bromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
75-27-4	Bromodichloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
75-25-2	Bromoform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
74-83-9	Bromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
75-15-0	Carbon disulfide	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
56-23-5	Carbon tetrachloride	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
108-90-7	Chlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
75-00-3	Chloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
67-66-3	Chloroform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
74-87-3	Chloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
156-59-2	cis-1,2-Dichloroethylene	250		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC

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Sample Information

Client Sample ID: VC_control_T1

York Sample ID: 21K1335-03

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1335

100766601

Water

November 29, 2021 12:00 pm

11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
110-82-7	Cyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
124-48-1	Dibromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
74-95-3	Dibromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
100-41-4	Ethyl Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
87-68-3	Hexachlorobutadiene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
98-82-8	Isopropylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
79-20-9	Methyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
108-87-2	Methylcyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
75-09-2	Methylene chloride	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
104-51-8	n-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
103-65-1	n-Propylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
95-47-6	o-Xylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
179601-23-1	p- & m- Xylenes	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
99-87-6	p-Isopropyltoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
135-98-8	sec-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
100-42-5	Styrene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
98-06-6	tert-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
127-18-4	Tetrachloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC

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Sample Information

Client Sample ID: VC_control_T1

York Sample ID: 21K1335-03

York Project (SDG) No.

21K1335

Client Project ID

100766601

Matrix

Water

Collection Date/Time

November 29, 2021 12:00 pm

Date Received

11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-88-3	Toluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
79-01-6	Trichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
75-69-4	Trichlorofluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
108-05-4	Vinyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
75-01-4	Vinyl Chloride	394		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 15:36	OC
1330-20-7	Xylenes, Total	ND		ug/L	1.20	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	12/06/2021 09:00	12/06/2021 15:36	OC
Surrogate Recoveries		Result	Acceptance Range								
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	98.0 %	69-130								
2037-26-5	Surrogate: SURR: Toluene-d8	98.2 %	81-117								
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	98.5 %	79-122								



Sample Information

Client Sample ID: VC_treated_T1

York Sample ID: 21K1335-04

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1335

100766601

Water

November 29, 2021 12:00 pm

11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
71-55-6	1,1,1-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
79-00-5	1,1,2-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
75-34-3	1,1-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
75-35-4	1,1-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
563-58-6	1,1-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	12/06/2021 09:00	12/06/2021 16:04	OC
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
96-18-4	1,2,3-Trichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
106-93-4	1,2-Dibromoethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
95-50-1	1,2-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
107-06-2	1,2-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
78-87-5	1,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
541-73-1	1,3-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
142-28-9	1,3-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
106-46-7	1,4-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
123-91-1	1,4-Dioxane	ND		ug/L	80.0	200	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC

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132-02 89th AVENUE

RICHMOND HILL, NY 11418

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Sample Information

Client Sample ID: VC_treated_T1

York Sample ID: 21K1335-04

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1335

100766601

Water

November 29, 2021 12:00 pm

11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
594-20-7	2,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
78-93-3	2-Butanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
95-49-8	2-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
591-78-6	2-Hexanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
106-43-4	4-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
108-10-1	4-Methyl-2-pentanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
67-64-1	Acetone	12.6		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
107-02-8	Acrolein	16.5		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
107-13-1	Acrylonitrile	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
71-43-2	Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
108-86-1	Bromobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
74-97-5	Bromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
75-27-4	Bromodichloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
75-25-2	Bromoform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
74-83-9	Bromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
75-15-0	Carbon disulfide	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
56-23-5	Carbon tetrachloride	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
108-90-7	Chlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
75-00-3	Chloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
67-66-3	Chloroform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
74-87-3	Chloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
156-59-2	cis-1,2-Dichloroethylene	310		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC

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Sample Information

Client Sample ID: VC_treated_T1

York Sample ID: 21K1335-04

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21K1335

100766601

Water

November 29, 2021 12:00 pm

11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
110-82-7	Cyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
124-48-1	Dibromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
74-95-3	Dibromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
100-41-4	Ethyl Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
87-68-3	Hexachlorobutadiene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
98-82-8	Isopropylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
79-20-9	Methyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
108-87-2	Methylcyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
75-09-2	Methylene chloride	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
104-51-8	n-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
103-65-1	n-Propylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
95-47-6	o-Xylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
179601-23-1	p- & m- Xylenes	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
99-87-6	p-Isopropyltoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
135-98-8	sec-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
100-42-5	Styrene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
98-06-6	tert-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
127-18-4	Tetrachloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC

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132-02 89th AVENUE

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Sample Information

Client Sample ID: VC_treated_T1

York Sample ID: 21K1335-04

York Project (SDG) No.
21K1335

Client Project ID
100766601

Matrix
Water

Collection Date/Time
November 29, 2021 12:00 pm

Date Received
11/29/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-88-3	Toluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
79-01-6	Trichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
75-69-4	Trichlorofluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
108-05-4	Vinyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
75-01-4	Vinyl Chloride	558		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/06/2021 09:00	12/06/2021 16:04	OC
1330-20-7	Xylenes, Total	ND		ug/L	1.20	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	12/06/2021 09:00	12/06/2021 16:04	OC
Surrogate Recoveries		Result		Acceptance Range							
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	105 %		69-130							
2037-26-5	Surrogate: SURR: Toluene-d8	110 %		81-117							
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	150 %	S-04	79-122							



Analytical Batch Summary

Batch ID: BL11434

Preparation Method: EPA 5030B

Prepared By: OC

YORK Sample ID	Client Sample ID	Preparation Date
21K1335-01	TCA_control_T1	12/06/21
21K1335-03	VC_control_T1	12/06/21
21K1335-04	VC_treated_T1	12/06/21
BL11434-BLK1	Blank	12/06/21
BL11434-BS1	LCS	12/06/21
BL11434-BSD1	LCS Dup	12/06/21

Batch ID: BL11551

Preparation Method: EPA 5030B

Prepared By: OC

YORK Sample ID	Client Sample ID	Preparation Date
21K1335-02	TCA_treated_T1	12/07/21
BL11551-BLK1	Blank	12/07/21
BL11551-BS1	LCS	12/07/21



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BL11434 - EPA 5030B

Blank (BL11434-BLK1)	Blank	Prepared & Analyzed: 12/06/2021									
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L								
1,1,1-Trichloroethane	ND	0.500	"								
1,1,2,2-Tetrachloroethane	ND	0.500	"								
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.500	"								
1,1,2-Trichloroethane	ND	0.500	"								
1,1-Dichloroethane	ND	0.500	"								
1,1-Dichloroethylene	ND	0.500	"								
1,1-Dichloropropylene	ND	0.500	"								
1,2,3-Trichlorobenzene	ND	0.500	"								
1,2,3-Trichloropropane	ND	0.500	"								
1,2,4-Trichlorobenzene	ND	0.500	"								
1,2,4-Trimethylbenzene	ND	0.500	"								
1,2-Dibromo-3-chloropropane	ND	0.500	"								
1,2-Dibromoethane	ND	0.500	"								
1,2-Dichlorobenzene	ND	0.500	"								
1,2-Dichloroethane	ND	0.500	"								
1,2-Dichloropropane	ND	0.500	"								
1,3,5-Trimethylbenzene	ND	0.500	"								
1,3-Dichlorobenzene	ND	0.500	"								
1,3-Dichloropropane	ND	0.500	"								
1,4-Dichlorobenzene	ND	0.500	"								
1,4-Dioxane	ND	80.0	"								
2,2-Dichloropropane	ND	0.500	"								
2-Butanone	ND	0.500	"								
2-Chlorotoluene	ND	0.500	"								
2-Hexanone	ND	0.500	"								
4-Chlorotoluene	ND	0.500	"								
4-Methyl-2-pentanone	ND	0.500	"								
Acetone	ND	2.00	"								
Acrolein	ND	0.500	"								
Acrylonitrile	ND	0.500	"								
Benzene	ND	0.500	"								
Bromobenzene	ND	0.500	"								
Bromochloromethane	ND	0.500	"								
Bromodichloromethane	ND	0.500	"								
Bromoform	ND	0.500	"								
Bromomethane	ND	0.500	"								
Carbon disulfide	ND	0.500	"								
Carbon tetrachloride	ND	0.500	"								
Chlorobenzene	ND	0.500	"								
Chloroethane	ND	0.500	"								
Chloroform	ND	0.500	"								
Chloromethane	ND	0.500	"								
cis-1,2-Dichloroethylene	ND	0.500	"								
cis-1,3-Dichloropropylene	ND	0.500	"								
Cyclohexane	ND	0.500	"								
Dibromochloromethane	ND	0.500	"								
Dibromomethane	ND	0.500	"								
Dichlorodifluoromethane	ND	0.500	"								
Ethyl Benzene	ND	0.500	"								



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BL11434 - EPA 5030B

Blank (BL11434-BLK1)	Blank	Prepared & Analyzed: 12/06/2021									
Hexachlorobutadiene	ND	0.500	ug/L								
Isopropylbenzene	ND	0.500	"								
Methyl acetate	ND	0.500	"								
Methyl tert-butyl ether (MTBE)	ND	0.500	"								
Methylcyclohexane	ND	0.500	"								
Methylene chloride	ND	2.00	"								
n-Butylbenzene	ND	0.500	"								
n-Propylbenzene	ND	0.500	"								
o-Xylene	ND	0.500	"								
p- & m- Xylenes	ND	1.00	"								
p-Isopropyltoluene	ND	0.500	"								
sec-Butylbenzene	ND	0.500	"								
Styrene	ND	0.500	"								
tert-Butyl alcohol (TBA)	ND	1.00	"								
tert-Butylbenzene	ND	0.500	"								
Tetrachloroethylene	ND	0.500	"								
Toluene	ND	0.500	"								
trans-1,2-Dichloroethylene	ND	0.500	"								
trans-1,3-Dichloropropylene	ND	0.500	"								
Trichloroethylene	ND	0.500	"								
Trichlorofluoromethane	ND	0.500	"								
Vinyl acetate	ND	0.500	"								
Vinyl Chloride	ND	0.500	"								
Xylenes, Total	ND	1.50	"								
Surrogate: SURR: 1,2-Dichloroethane-d4	49.1		"	50.0		98.2	69-130				
Surrogate: SURR: Toluene-d8	49.3		"	50.0		98.6	81-117				
Surrogate: SURR: p-Bromofluorobenzene	50.5		"	50.0		101	79-122				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BL11434 - EPA 5030B											
LCS (BL11434-BS1)	LCS		Prepared & Analyzed: 12/06/2021								
1,1,1,2-Tetrachloroethane	44.5		ug/L	50.0		89.0	82-126				
1,1,1-Trichloroethane	45.3		"	50.0		90.5	78-136				
1,1,2,2-Tetrachloroethane	44.4		"	50.0		88.9	76-129				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	51.9		"	50.0		104	54-165				
1,1,2-Trichloroethane	43.0		"	50.0		85.9	82-123				
1,1-Dichloroethane	44.4		"	50.0		88.7	82-129				
1,1-Dichloroethylene	52.3		"	50.0		105	68-138				
1,1-Dichloropropylene	42.3		"	50.0		84.5	83-133				
1,2,3-Trichlorobenzene	43.7		"	50.0		87.3	76-136				
1,2,3-Trichloropropane	43.7		"	50.0		87.4	77-128				
1,2,4-Trichlorobenzene	44.7		"	50.0		89.5	76-137				
1,2,4-Trimethylbenzene	45.2		"	50.0		90.5	82-132				
1,2-Dibromo-3-chloropropane	43.1		"	50.0		86.3	45-147				
1,2-Dibromoethane	44.6		"	50.0		89.3	83-124				
1,2-Dichlorobenzene	44.9		"	50.0		89.7	79-123				
1,2-Dichloroethane	44.1		"	50.0		88.3	73-132				
1,2-Dichloropropane	44.8		"	50.0		89.5	78-126				
1,3,5-Trimethylbenzene	45.0		"	50.0		90.0	80-131				
1,3-Dichlorobenzene	45.0		"	50.0		90.0	86-122				
1,3-Dichloropropane	42.8		"	50.0		85.7	81-125				
1,4-Dichlorobenzene	45.0		"	50.0		89.9	85-124				
1,4-Dioxane	594		"	1050		56.6	10-349				
2,2-Dichloropropane	45.6		"	50.0		91.2	56-150				
2-Butanone	41.6		"	50.0		83.3	49-152				
2-Chlorotoluene	46.2		"	50.0		92.4	79-130				
2-Hexanone	37.7		"	50.0		75.5	51-146				
4-Chlorotoluene	46.0		"	50.0		91.9	79-128				
4-Methyl-2-pentanone	41.8		"	50.0		83.7	57-145				
Acetone	24.5		"	50.0		49.1	14-150				
Acrolein	90.3		"	50.0		181	10-153	High Bias			
Acrylonitrile	43.0		"	50.0		86.0	51-150				
Benzene	44.8		"	50.0		89.5	85-126				
Bromobenzene	44.0		"	50.0		88.0	78-129				
Bromochloromethane	43.8		"	50.0		87.5	77-128				
Bromodichloromethane	44.0		"	50.0		88.0	79-128				
Bromoform	46.1		"	50.0		92.1	78-133				
Bromomethane	61.2		"	50.0		122	43-168				
Carbon disulfide	48.9		"	50.0		97.7	68-146				
Carbon tetrachloride	46.0		"	50.0		91.9	77-141				
Chlorobenzene	47.4		"	50.0		94.9	88-120				
Chloroethane	52.8		"	50.0		106	65-136				
Chloroform	44.9		"	50.0		89.8	82-128				
Chloromethane	63.1		"	50.0		126	43-155				
cis-1,2-Dichloroethylene	44.1		"	50.0		88.2	83-129				
cis-1,3-Dichloropropylene	44.6		"	50.0		89.2	80-131				
Cyclohexane	42.9		"	50.0		85.8	63-149				
Dibromochloromethane	43.4		"	50.0		86.9	80-130				
Dibromomethane	42.7		"	50.0		85.5	72-134				
Dichlorodifluoromethane	89.6		"	50.0		179	44-144	High Bias			
Ethyl Benzene	45.5		"	50.0		90.9	80-131				
Hexachlorobutadiene	44.5		"	50.0		89.1	67-146				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	Limit	Flag

Batch BL11434 - EPA 5030B

LCS (BL11434-BS1)	LCS	Prepared & Analyzed: 12/06/2021									
Isopropylbenzene	47.4	ug/L	50.0	94.9	76-140						
Methyl acetate	35.6	"	50.0	71.1	51-139						
Methyl tert-butyl ether (MTBE)	44.2	"	50.0	88.4	76-135						
Methylcyclohexane	42.0	"	50.0	83.9	72-143						
Methylene chloride	41.9	"	50.0	83.8	55-137						
n-Butylbenzene	44.9	"	50.0	89.8	79-132						
n-Propylbenzene	46.0	"	50.0	92.1	78-133						
o-Xylene	46.8	"	50.0	93.7	78-130						
p- & m- Xylenes	92.1	"	100	92.1	77-133						
p-Isopropyltoluene	46.1	"	50.0	92.1	81-136						
sec-Butylbenzene	45.9	"	50.0	91.7	79-137						
Styrene	45.2	"	50.0	90.4	67-132						
tert-Butyl alcohol (TBA)	201	"	250	80.4	25-162						
tert-Butylbenzene	46.4	"	50.0	92.8	77-138						
Tetrachloroethylene	36.7	"	50.0	73.4	82-131	Low Bias					
Toluene	44.7	"	50.0	89.4	80-127						
trans-1,2-Dichloroethylene	45.8	"	50.0	91.7	80-132						
trans-1,3-Dichloropropylene	44.2	"	50.0	88.4	78-131						
Trichloroethylene	41.9	"	50.0	83.7	82-128						
Trichlorofluoromethane	55.0	"	50.0	110	67-139						
Vinyl acetate	42.0	"	50.0	83.9	21-90						
Vinyl Chloride	57.8	"	50.0	116	58-145						
Surrogate: SURR: 1,2-Dichloroethane-d4	49.5	"	50.0	99.0	69-130						
Surrogate: SURR: Toluene-d8	49.9	"	50.0	99.7	81-117						
Surrogate: SURR: p-Bromofluorobenzene	50.5	"	50.0	101	79-122						

LCS Dup (BL11434-BS1)	LCS Dup	Prepared & Analyzed: 12/06/2021									
1,1,1,2-Tetrachloroethane	47.6	ug/L	50.0	95.1	82-126	6.67	30				
1,1,1-Trichloroethane	48.1	"	50.0	96.2	78-136	6.08	30				
1,1,2,2-Tetrachloroethane	48.0	"	50.0	96.0	76-129	7.68	30				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	49.3	"	50.0	98.6	54-165	5.22	30				
1,1,2-Trichloroethane	46.2	"	50.0	92.3	82-123	7.20	30				
1,1-Dichloroethane	48.5	"	50.0	97.0	82-129	8.88	30				
1,1-Dichloroethylene	44.0	"	50.0	88.0	68-138	17.2	30				
1,1-Dichloropropylene	45.5	"	50.0	91.0	83-133	7.36	30				
1,2,3-Trichlorobenzene	46.7	"	50.0	93.4	76-136	6.75	30				
1,2,3-Trichloropropane	46.2	"	50.0	92.3	77-128	5.52	30				
1,2,4-Trichlorobenzene	48.2	"	50.0	96.4	76-137	7.45	30				
1,2,4-Trimethylbenzene	48.6	"	50.0	97.2	82-132	7.20	30				
1,2-Dibromo-3-chloropropane	48.0	"	50.0	96.1	45-147	10.8	30				
1,2-Dibromoethane	48.0	"	50.0	96.1	83-124	7.29	30				
1,2-Dichlorobenzene	47.6	"	50.0	95.1	79-123	5.86	30				
1,2-Dichloroethane	47.1	"	50.0	94.3	73-132	6.60	30				
1,2-Dichloropropane	48.3	"	50.0	96.6	78-126	7.63	30				
1,3,5-Trimethylbenzene	48.4	"	50.0	96.7	80-131	7.13	30				
1,3-Dichlorobenzene	47.8	"	50.0	95.6	86-122	6.01	30				
1,3-Dichloropropane	46.3	"	50.0	92.6	81-125	7.72	30				
1,4-Dichlorobenzene	47.6	"	50.0	95.1	85-124	5.58	30				
1,4-Dioxane	661	"	1050	62.9	10-349	10.6	30				
2,2-Dichloropropane	50.0	"	50.0	99.9	56-150	9.10	30				
2-Butanone	43.8	"	50.0	87.7	49-152	5.10	30				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BL11434 - EPA 5030B											
LCS Dup (BL11434-BSD1)	LCS Dup		Prepared & Analyzed: 12/06/2021								
2-Chlorotoluene	48.8		ug/L	50.0		97.5	79-130		5.33	30	
2-Hexanone	41.4		"	50.0		82.9	51-146		9.40	30	
4-Chlorotoluene	49.0		"	50.0		98.1	79-128		6.44	30	
4-Methyl-2-pentanone	46.0		"	50.0		91.9	57-145		9.38	30	
Acetone	24.2		"	50.0		48.4	14-150		1.31	30	
Acrolein	92.4		"	50.0		185	10-153	High Bias	2.23	30	
Acrylonitrile	47.3		"	50.0		94.7	51-150		9.56	30	
Benzene	48.4		"	50.0		96.8	85-126		7.79	30	
Bromobenzene	47.0		"	50.0		94.0	78-129		6.60	30	
Bromochloromethane	48.4		"	50.0		96.7	77-128		9.97	30	
Bromodichloromethane	47.3		"	50.0		94.6	79-128		7.25	30	
Bromoform	49.3		"	50.0		98.7	78-133		6.85	30	
Bromomethane	57.4		"	50.0		115	43-168		6.34	30	
Carbon disulfide	54.0		"	50.0		108	68-146		9.97	30	
Carbon tetrachloride	49.0		"	50.0		97.9	77-141		6.30	30	
Chlorobenzene	51.1		"	50.0		102	88-120		7.37	30	
Chloroethane	49.8		"	50.0		99.5	65-136		5.95	30	
Chloroform	48.5		"	50.0		97.0	82-128		7.66	30	
Chloromethane	58.1		"	50.0		116	43-155		8.26	30	
cis-1,2-Dichloroethylene	48.1		"	50.0		96.2	83-129		8.67	30	
cis-1,3-Dichloropropylene	48.5		"	50.0		97.0	80-131		8.38	30	
Cyclohexane	47.0		"	50.0		94.1	63-149		9.18	30	
Dibromochloromethane	47.1		"	50.0		94.2	80-130		8.06	30	
Dibromomethane	46.5		"	50.0		93.1	72-134		8.51	30	
Dichlorodifluoromethane	81.6		"	50.0		163	44-144	High Bias	9.32	30	
Ethyl Benzene	48.8		"	50.0		97.5	80-131		6.96	30	
Hexachlorobutadiene	48.0		"	50.0		96.0	67-146		7.48	30	
Isopropylbenzene	50.2		"	50.0		100	76-140		5.75	30	
Methyl acetate	43.8		"	50.0		87.7	51-139		20.9	30	
Methyl tert-butyl ether (MTBE)	48.5		"	50.0		97.1	76-135		9.40	30	
Methylcyclohexane	48.2		"	50.0		96.3	72-143		13.8	30	
Methylene chloride	48.5		"	50.0		97.1	55-137		14.7	30	
n-Butylbenzene	47.6		"	50.0		95.2	79-132		5.82	30	
n-Propylbenzene	48.5		"	50.0		97.0	78-133		5.18	30	
o-Xylene	50.3		"	50.0		101	78-130		7.07	30	
p- & m- Xylenes	98.2		"	100		98.2	77-133		6.48	30	
p-Isopropyltoluene	49.1		"	50.0		98.2	81-136		6.35	30	
sec-Butylbenzene	48.8		"	50.0		97.7	79-137		6.29	30	
Styrene	48.3		"	50.0		96.6	67-132		6.67	30	
tert-Butyl alcohol (TBA)	232		"	250		92.6	25-162		14.1	30	
tert-Butylbenzene	49.4		"	50.0		98.9	77-138		6.28	30	
Tetrachloroethylene	39.3		"	50.0		78.6	82-131	Low Bias	6.79	30	
Toluene	47.9		"	50.0		95.8	80-127		6.85	30	
trans-1,2-Dichloroethylene	50.8		"	50.0		102	80-132		10.3	30	
trans-1,3-Dichloropropylene	47.8		"	50.0		95.5	78-131		7.79	30	
Trichloroethylene	47.9		"	50.0		95.9	82-128		13.5	30	
Trichlorofluoromethane	51.9		"	50.0		104	67-139		5.82	30	
Vinyl acetate	44.9		"	50.0		89.8	21-90		6.75	30	
Vinyl Chloride	54.1		"	50.0		108	58-145		6.51	30	
Surrogate: SURR: 1,2-Dichloroethane-d4	49.2		"	50.0		98.4	69-130				
Surrogate: SURR: Toluene-d8	49.6		"	50.0		99.2	81-117				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BL11434 - EPA 5030B

LCS Dup (BL11434-BSD1) LCS Dup

Prepared & Analyzed: 12/06/2021

Surrogate: *SURR: p-Bromofluorobenzene* 50.6 ug/L 50.0 101 79-122

Batch BL11551 - EPA 5030B

Blank (BL11551-BLK1) Blank

Prepared & Analyzed: 12/07/2021

1,1,1,2-Tetrachloroethane	ND	0.500	ug/L
1,1,1-Trichloroethane	ND	0.500	"
1,1,2,2-Tetrachloroethane	ND	0.500	"
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.500	"
1,1,2-Trichloroethane	ND	0.500	"
1,1-Dichloroethane	ND	0.500	"
1,1-Dichloroethylene	ND	0.500	"
1,1-Dichloropropylene	ND	0.500	"
1,2,3-Trichlorobenzene	ND	0.500	"
1,2,3-Trichloropropane	ND	0.500	"
1,2,4-Trichlorobenzene	ND	0.500	"
1,2,4-Trimethylbenzene	ND	0.500	"
1,2-Dibromo-3-chloropropane	ND	0.500	"
1,2-Dibromoethane	ND	0.500	"
1,2-Dichlorobenzene	ND	0.500	"
1,2-Dichloroethane	ND	0.500	"
1,2-Dichloropropane	ND	0.500	"
1,3,5-Trimethylbenzene	ND	0.500	"
1,3-Dichlorobenzene	ND	0.500	"
1,3-Dichloropropane	ND	0.500	"
1,4-Dichlorobenzene	ND	0.500	"
1,4-Dioxane	ND	80.0	"
2,2-Dichloropropane	ND	0.500	"
2-Butanone	ND	0.500	"
2-Chlorotoluene	ND	0.500	"
2-Hexanone	ND	0.500	"
4-Chlorotoluene	ND	0.500	"
4-Methyl-2-pentanone	ND	0.500	"
Acetone	ND	2.00	"
Acrolein	ND	0.500	"
Acrylonitrile	ND	0.500	"
Benzene	ND	0.500	"
Bromobenzene	ND	0.500	"
Bromochloromethane	ND	0.500	"
Bromodichloromethane	ND	0.500	"
Bromoform	ND	0.500	"
Bromomethane	ND	0.500	"
Carbon disulfide	ND	0.500	"
Carbon tetrachloride	ND	0.500	"
Chlorobenzene	ND	0.500	"
Chloroethane	ND	0.500	"
Chloroform	ND	0.500	"
Chloromethane	ND	0.500	"
cis-1,2-Dichloroethylene	ND	0.500	"
cis-1,3-Dichloropropylene	ND	0.500	"
Cyclohexane	ND	0.500	"





Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BL11551 - EPA 5030B

Blank (BL11551-BLK1)	Blank	Prepared & Analyzed: 12/07/2021									
Dibromochloromethane	ND	0.500	ug/L								
Dibromomethane	ND	0.500	"								
Dichlorodifluoromethane	ND	0.500	"								
Ethyl Benzene	ND	0.500	"								
Hexachlorobutadiene	ND	0.500	"								
Isopropylbenzene	ND	0.500	"								
Methyl acetate	ND	0.500	"								
Methyl tert-butyl ether (MTBE)	ND	0.500	"								
Methylcyclohexane	ND	0.500	"								
Methylene chloride	ND	2.00	"								
n-Butylbenzene	ND	0.500	"								
n-Propylbenzene	ND	0.500	"								
o-Xylene	ND	0.500	"								
p- & m- Xylenes	ND	1.00	"								
p-Isopropyltoluene	ND	0.500	"								
sec-Butylbenzene	ND	0.500	"								
Styrene	ND	0.500	"								
tert-Butyl alcohol (TBA)	ND	1.00	"								
tert-Butylbenzene	ND	0.500	"								
Tetrachloroethylene	ND	0.500	"								
Toluene	ND	0.500	"								
trans-1,2-Dichloroethylene	ND	0.500	"								
trans-1,3-Dichloropropylene	ND	0.500	"								
Trichloroethylene	ND	0.500	"								
Trichlorofluoromethane	ND	0.500	"								
Vinyl acetate	ND	0.500	"								
Vinyl Chloride	ND	0.500	"								
Xylenes, Total	ND	1.50	"								
Surrogate: SURR: 1,2-Dichloroethane-d4	49.8		"	50.0		99.7	69-130				
Surrogate: SURR: Toluene-d8	49.3		"	50.0		98.6	81-117				
Surrogate: SURR: p-Bromofluorobenzene	49.9		"	50.0		99.8	79-122				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BL11551 - EPA 5030B											
LCS (BL11551-BS1)	LCS	Prepared & Analyzed: 12/07/2021									
1,1,1,2-Tetrachloroethane	49.7		ug/L	50.0		99.4	82-126				
1,1,1-Trichloroethane	50.3		"	50.0		101	78-136				
1,1,2,2-Tetrachloroethane	50.7		"	50.0		101	76-129				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	48.5		"	50.0		97.1	54-165				
1,1,2-Trichloroethane	49.5		"	50.0		98.9	82-123				
1,1-Dichloroethane	50.9		"	50.0		102	82-129				
1,1-Dichloroethylene	46.2		"	50.0		92.4	68-138				
1,1-Dichloropropylene	47.8		"	50.0		95.7	83-133				
1,2,3-Trichlorobenzene	47.5		"	50.0		95.0	76-136				
1,2,3-Trichloropropane	51.1		"	50.0		102	77-128				
1,2,4-Trichlorobenzene	47.1		"	50.0		94.3	76-137				
1,2,4-Trimethylbenzene	48.9		"	50.0		97.8	82-132				
1,2-Dibromo-3-chloropropane	52.6		"	50.0		105	45-147				
1,2-Dibromoethane	51.7		"	50.0		103	83-124				
1,2-Dichlorobenzene	48.7		"	50.0		97.4	79-123				
1,2-Dichloroethane	50.5		"	50.0		101	73-132				
1,2-Dichloropropane	50.8		"	50.0		102	78-126				
1,3,5-Trimethylbenzene	48.6		"	50.0		97.1	80-131				
1,3-Dichlorobenzene	48.6		"	50.0		97.3	86-122				
1,3-Dichloropropane	49.7		"	50.0		99.5	81-125				
1,4-Dichlorobenzene	48.2		"	50.0		96.4	85-124				
1,4-Dioxane	724		"	1050		69.0	10-349				
2,2-Dichloropropane	49.1		"	50.0		98.2	56-150				
2-Butanone	52.5		"	50.0		105	49-152				
2-Chlorotoluene	50.0		"	50.0		100	79-130				
2-Hexanone	48.4		"	50.0		96.7	51-146				
4-Chlorotoluene	49.8		"	50.0		99.6	79-128				
4-Methyl-2-pentanone	52.9		"	50.0		106	57-145				
Acetone	29.3		"	50.0		58.6	14-150				
Acrolein	75.4		"	50.0		151	10-153				
Acrylonitrile	53.5		"	50.0		107	51-150				
Benzene	50.7		"	50.0		101	85-126				
Bromobenzene	48.8		"	50.0		97.6	78-129				
Bromochloromethane	50.6		"	50.0		101	77-128				
Bromodichloromethane	49.5		"	50.0		99.0	79-128				
Bromoform	53.2		"	50.0		106	78-133				
Bromomethane	57.7		"	50.0		115	43-168				
Carbon disulfide	50.8		"	50.0		102	68-146				
Carbon tetrachloride	51.5		"	50.0		103	77-141				
Chlorobenzene	52.8		"	50.0		106	88-120				
Chloroethane	52.5		"	50.0		105	65-136				
Chloroform	51.2		"	50.0		102	82-128				
Chloromethane	60.5		"	50.0		121	43-155				
cis-1,2-Dichloroethylene	50.2		"	50.0		100	83-129				
cis-1,3-Dichloropropylene	49.6		"	50.0		99.1	80-131				
Cyclohexane	51.2		"	50.0		102	63-149				
Dibromochloromethane	50.1		"	50.0		100	80-130				
Dibromomethane	49.6		"	50.0		99.3	72-134				
Dichlorodifluoromethane	83.9		"	50.0		168	44-144	High Bias			
Ethyl Benzene	50.2		"	50.0		100	80-131				
Hexachlorobutadiene	47.3		"	50.0		94.6	67-146				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BL11551 - EPA 5030B											
LCS (BL11551-BS1)	LCS		Prepared & Analyzed: 12/07/2021								
Isopropylbenzene	51.3		ug/L	50.0		103	76-140				
Methyl acetate	51.8		"	50.0		104	51-139				
Methyl tert-butyl ether (MTBE)	52.0		"	50.0		104	76-135				
Methylcyclohexane	51.1		"	50.0		102	72-143				
Methylene chloride	50.4		"	50.0		101	55-137				
n-Butylbenzene	47.2		"	50.0		94.5	79-132				
n-Propylbenzene	49.3		"	50.0		98.6	78-133				
o-Xylene	51.8		"	50.0		104	78-130				
p- & m- Xylenes	101		"	100		101	77-133				
p-Isopropyltoluene	49.1		"	50.0		98.3	81-136				
sec-Butylbenzene	49.7		"	50.0		99.3	79-137				
Styrene	50.2		"	50.0		100	67-132				
tert-Butyl alcohol (TBA)	259		"	250		104	25-162				
tert-Butylbenzene	50.5		"	50.0		101	77-138				
Tetrachloroethylene	40.2		"	50.0		80.3	82-131	Low Bias			
Toluene	49.5		"	50.0		99.0	80-127				
trans-1,2-Dichloroethylene	52.8		"	50.0		106	80-132				
trans-1,3-Dichloropropylene	49.2		"	50.0		98.4	78-131				
Trichloroethylene	50.4		"	50.0		101	82-128				
Trichlorofluoromethane	54.0		"	50.0		108	67-139				
Vinyl acetate	47.9		"	50.0		95.8	21-90	High Bias			
Vinyl Chloride	56.5		"	50.0		113	58-145				
Surrogate: SURR: 1,2-Dichloroethane-d4	49.9		"	50.0		99.8	69-130				
Surrogate: SURR: Toluene-d8	49.8		"	50.0		99.6	81-117				
Surrogate: SURR: p-Bromofluorobenzene	50.2		"	50.0		100	79-122				



Volatile Analysis Sample Containers

Lab ID	Client Sample ID	Volatile Sample Container
21K1335-01	TCA_control_T1	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C
21K1335-02	TCA_treated_T1	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C
21K1335-03	VC_control_T1	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C
21K1335-04	VC_treated_T1	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C



Sample and Data Qualifiers Relating to This Work Order

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QL-02	This LCS analyte is outside Laboratory Recovery limits due the analyte behavior using the referenced method. The reference method has certain limitations with respect to analytes of this nature.

Definitions and Other Explanations

*	Analyte is not certified or the state of the samples origination does not offer certification for the Analyte.
ND	NOT DETECTED - the analyte is not detected at the Reported to level (LOQ/RL or LOD/MDL)
RL	REPORTING LIMIT - the minimum reportable value based upon the lowest point in the analyte calibration curve.
LOQ	LIMIT OF QUANTITATION - the minimum concentration of a target analyte that can be reported within a specified degree of confidence. This is the lowest point in an analyte calibration curve that has been subjected to all steps of the processing/analysis and verified to meet defined criteria. This is based upon NELAC 2009 Standards and applies to all analyses.
LOD	LIMIT OF DETECTION - a verified estimate of the minimum concentration of a substance in a given matrix that an analytical process can reliably detect. This is based upon NELAC 2009 Standards and applies to all analyses conducted under the auspices of EPA SW-846.
MDL	METHOD DETECTION LIMIT - a statistically derived estimate of the minimum amount of a substance an analytical system can reliably detect with a 99% confidence that the concentration of the substance is greater than zero. This is based upon 40 CFR Part 136 Appendix B and applies only to EPA 600 and 200 series methods.
Reported to	This indicates that the data for a particular analysis is reported to either the LOD/MDL, or the LOQ/RL. In cases where the "Reported to" is located above the LOD/MDL, any value between this and the LOQ represents an estimated value which is "J" flagged accordingly. This applies to volatile and semi-volatile target compounds only.
NR	Not reported
RPD	Relative Percent Difference
Wet	The data has been reported on an as-received (wet weight) basis
Low Bias	Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit. The data user should take note that this analyte may be biased low but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
High Bias	High Bias flag indicates that the recovery of the flagged analyte is above the laboratory or regulatory upper control limit. The data user should take note that this analyte may be biased high but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
Non-Dir.	Non-dir. flag (Non-Directional Bias) indicates that the Relative Percent Difference (RPD) (a measure of precision) among the MS and MSD data is outside the laboratory or regulatory control limit. This alerts the data user where the MS and MSD are from site-specific samples that the RPD is high due to either non-homogeneous distribution of target analyte between the MS/MSD or indicates poor reproducibility for other reasons.

If EPA SW-846 method 8270 is included herein it is noted that the target compound N-nitrosodiphenylamine (NDPA) decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine (DPA). These results could actually represent 100% DPA, 100% NDPA or some combination of the two. For this reason, York reports the combined result for n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration as Diphenylamine.

If Total PCBs are detected and the target aroclors reported are "Not detected", the Total PCB value is reported due to the presence of either or both Aroclors 1262 and 1268 which are non-target aroclors for some regulatory lists.

2-chloroethylvinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

Certification for pH is no longer offered by NYDOH ELAP.

Semi-Volatile and Volatile analyses are reported down to the LOD/MDL, with values between the LOD/MDL and the LOQ being "J" flagged as estimated results.

For analyses by EPA SW-846-8270D, the Limit of Quantitation (LOQ) reported for benzidine is based upon the lowest standard used for calibration and is not a verified LOQ due to this compound's propensity for oxidative losses during extraction/concentration procedures and non-reproducible chromatographic performance.





Technical Report

prepared for:

Langan Engineering & Environmental Services (NJ)

300 Kimball Drive, 4th Floor

Parsipanny NJ, 07054-2172

Attention: Aroona Boodram

Report Date: 12/17/2021

Client Project ID: 100766601

York Project (SDG) No.: 21L0257



CT Cert. No. PH-0723

New Jersey Cert. No. CT005 and NY037

New York Cert. Nos. 10854 and 12058

PA Cert. No. 68-04440

Report Date: 12/17/2021
Client Project ID: 100766601
York Project (SDG) No.: 21L0257

Langan Engineering & Environmental Services (NJ)
300 Kimball Drive, 4th Floor
Parsipanny NJ, 07054-2172
Attention: Aroona Boodram

Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on December 06, 2021 and listed below. The project was identified as your project: **100766601**.

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the customary acceptance requirements for environmental samples except those indicated under the Sample and Analysis Qualifiers section of this report.

All analyses met the method and laboratory standard operating procedure requirements except as indicated by any data flags, the meaning of which are explained in the Sample and Data Qualifiers Relating to This Work Order section of this report and case narrative if applicable.

The results of the analyses, which are all reported on dry weight basis (soils) unless otherwise noted, are detailed in the following pages.

Please contact Client Services at 203.325.1371 with any questions regarding this report.

<u>York Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>
21L0257-01	VC_control_T2	Water	12/06/2021	12/06/2021
21L0257-02	VC_treated_T2	Water	12/06/2021	12/06/2021
21L0257-03	TCA_control_T2	Water	12/06/2021	12/06/2021
21L0257-04	TCA_treated_T2	Water	12/06/2021	12/06/2021

General Notes for York Project (SDG) No.: 21L0257

1. The RLs and MDLs (Reporting Limit and Method Detection Limit respectively) reported are adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. The RL(REPORTING LIMIT) is based upon the lowest standard utilized for the calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All analyses conducted met method or Laboratory SOP requirements. See the Sample and Data Qualifiers Section for further information.
6. It is noted that no analyses reported herein were subcontracted to another laboratory, unless noted in the report.
7. This report reflects results that relate only to the samples submitted on the attached chain-of-custody form(s) received by York.
8. Analyses conducted at York Analytical Laboratories, Inc. Stratford, CT are indicated by NY Cert. No. 10854; those conducted at York Analytical Laboratories, Inc., Richmond Hill, NY are indicated by NY Cert. No. 12058.

Approved By



Cassie L. Mosher
Laboratory Manager

Date: 12/17/2021





Sample Information

Client Sample ID: VC_control_T2

York Sample ID: 21L0257-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21L0257

100766601

Water

December 6, 2021 11:10 am

12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
71-55-6	1,1,1-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
79-00-5	1,1,2-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
75-34-3	1,1-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
75-35-4	1,1-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
563-58-6	1,1-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	12/07/2021 12:30	12/07/2021 23:28	OC
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
96-18-4	1,2,3-Trichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
106-93-4	1,2-Dibromoethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
95-50-1	1,2-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
107-06-2	1,2-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
78-87-5	1,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
541-73-1	1,3-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
142-28-9	1,3-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
106-46-7	1,4-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC

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Sample Information

Client Sample ID: VC_control_T2

York Sample ID: 21L0257-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21L0257

100766601

Water

December 6, 2021 11:10 am

12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
123-91-1	1,4-Dioxane	ND		ug/L	80.0	200	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
594-20-7	2,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
78-93-3	2-Butanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
95-49-8	2-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
591-78-6	2-Hexanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
106-43-4	4-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
108-10-1	4-Methyl-2-pentanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
67-64-1	Acetone	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
107-02-8	Acrolein	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
107-13-1	Acrylonitrile	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
71-43-2	Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
108-86-1	Bromobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
74-97-5	Bromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
75-27-4	Bromodichloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
75-25-2	Bromoform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
74-83-9	Bromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
75-15-0	Carbon disulfide	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
56-23-5	Carbon tetrachloride	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
108-90-7	Chlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
75-00-3	Chloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
67-66-3	Chloroform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
74-87-3	Chloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC

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Sample Information

Client Sample ID: VC_control_T2

York Sample ID: 21L0257-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21L0257

100766601

Water

December 6, 2021 11:10 am

12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
156-59-2	cis-1,2-Dichloroethylene	240		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
110-82-7	Cyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
124-48-1	Dibromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
74-95-3	Dibromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
100-41-4	Ethyl Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
87-68-3	Hexachlorobutadiene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
98-82-8	Isopropylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
79-20-9	Methyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
108-87-2	Methylcyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
75-09-2	Methylene chloride	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
104-51-8	n-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
103-65-1	n-Propylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
95-47-6	o-Xylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
179601-23-1	p- & m- Xylenes	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
99-87-6	p-Isopropyltoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
135-98-8	sec-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
100-42-5	Styrene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
98-06-6	tert-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC

120 RESEARCH DRIVE

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Sample Information

Client Sample ID: VC_control_T2

York Sample ID: 21L0257-01

York Project (SDG) No.

21L0257

Client Project ID

100766601

Matrix

Water

Collection Date/Time

December 6, 2021 11:10 am

Date Received

12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
127-18-4	Tetrachloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
108-88-3	Toluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
79-01-6	Trichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
75-69-4	Trichlorofluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
108-05-4	Vinyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
75-01-4	Vinyl Chloride	417		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:28	OC
1330-20-7	Xylenes, Total	ND		ug/L	1.20	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	12/07/2021 12:30	12/07/2021 23:28	OC
Surrogate Recoveries		Result	Acceptance Range								
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	104 %	69-130								
2037-26-5	Surrogate: SURR: Toluene-d8	95.2 %	81-117								
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	95.1 %	79-122								



Sample Information

Client Sample ID: VC_treated_T2

York Sample ID: 21L0257-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

21L0257

100766601

Water

December 6, 2021 11:10 am

12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
71-55-6	1,1,1-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
79-00-5	1,1,2-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
75-34-3	1,1-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
75-35-4	1,1-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
563-58-6	1,1-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	12/07/2021 12:30	12/07/2021 23:55	OC
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
96-18-4	1,2,3-Trichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
106-93-4	1,2-Dibromoethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
95-50-1	1,2-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
107-06-2	1,2-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
78-87-5	1,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
541-73-1	1,3-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
142-28-9	1,3-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
106-46-7	1,4-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
123-91-1	1,4-Dioxane	ND		ug/L	80.0	200	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC

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Sample Information

Client Sample ID: VC_treated_T2

York Sample ID: 21L0257-02

York Project (SDG) No.
21L0257

Client Project ID
100766601

Matrix
Water

Collection Date/Time
December 6, 2021 11:10 am

Date Received
12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
594-20-7	2,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
78-93-3	2-Butanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
95-49-8	2-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
591-78-6	2-Hexanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
106-43-4	4-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
108-10-1	4-Methyl-2-pentanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
67-64-1	Acetone	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
107-02-8	Acrolein	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
107-13-1	Acrylonitrile	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
71-43-2	Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
108-86-1	Bromobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
74-97-5	Bromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
75-27-4	Bromodichloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
75-25-2	Bromoform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
74-83-9	Bromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
75-15-0	Carbon disulfide	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
56-23-5	Carbon tetrachloride	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
108-90-7	Chlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
75-00-3	Chloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
67-66-3	Chloroform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
74-87-3	Chloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
156-59-2	cis-1,2-Dichloroethylene	223		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC



Sample Information

Client Sample ID: VC_treated_T2

York Sample ID: 21L0257-02

York Project (SDG) No.
21L0257

Client Project ID
100766601

Matrix
Water

Collection Date/Time
December 6, 2021 11:10 am

Date Received
12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
110-82-7	Cyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
124-48-1	Dibromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
74-95-3	Dibromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
100-41-4	Ethyl Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
87-68-3	Hexachlorobutadiene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
98-82-8	Isopropylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
79-20-9	Methyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
108-87-2	Methylcyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
75-09-2	Methylene chloride	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
104-51-8	n-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
103-65-1	n-Propylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
95-47-6	o-Xylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
179601-23-1	p- & m- Xylenes	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
99-87-6	p-Isopropyltoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
135-98-8	sec-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
100-42-5	Styrene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
98-06-6	tert-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
127-18-4	Tetrachloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC



Sample Information

Client Sample ID: VC_treated_T2

York Sample ID: 21L0257-02

York Project (SDG) No.

21L0257

Client Project ID

100766601

Matrix

Water

Collection Date/Time

December 6, 2021 11:10 am

Date Received

12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-88-3	Toluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
79-01-6	Trichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
75-69-4	Trichlorofluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
108-05-4	Vinyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
75-01-4	Vinyl Chloride	430		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/07/2021 23:55	OC
1330-20-7	Xylenes, Total	ND		ug/L	1.20	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	12/07/2021 12:30	12/07/2021 23:55	OC
Surrogate Recoveries		Result	Acceptance Range								
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	103 %			69-130						
2037-26-5	Surrogate: SURR: Toluene-d8	103 %			81-117						
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	125 %	S-04		79-122						



Sample Information

Client Sample ID: TCA_control_T2

York Sample ID: 21L0257-03

York Project (SDG) No.

21L0257

Client Project ID

100766601

Matrix

Water

Collection Date/Time

December 6, 2021 11:10 am

Date Received

12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
71-55-6	1,1,1-Trichloroethane	267		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
79-00-5	1,1,2-Trichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
75-34-3	1,1-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
75-35-4	1,1-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
563-58-6	1,1-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	12/07/2021 12:30	12/08/2021 00:23	OC
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
96-18-4	1,2,3-Trichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
106-93-4	1,2-Dibromoethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
95-50-1	1,2-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
107-06-2	1,2-Dichloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
78-87-5	1,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
541-73-1	1,3-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
142-28-9	1,3-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
106-46-7	1,4-Dichlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
123-91-1	1,4-Dioxane	ND		ug/L	80.0	200	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC

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Sample Information

Client Sample ID: TCA_control_T2

York Sample ID: 21L0257-03

York Project (SDG) No.
21L0257

Client Project ID
100766601

Matrix
Water

Collection Date/Time
December 6, 2021 11:10 am

Date Received
12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
594-20-7	2,2-Dichloropropane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
78-93-3	2-Butanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
95-49-8	2-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
591-78-6	2-Hexanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
106-43-4	4-Chlorotoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
108-10-1	4-Methyl-2-pentanone	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
67-64-1	Acetone	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
107-02-8	Acrolein	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
107-13-1	Acrylonitrile	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
71-43-2	Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
108-86-1	Bromobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
74-97-5	Bromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
75-27-4	Bromodichloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
75-25-2	Bromoform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
74-83-9	Bromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
75-15-0	Carbon disulfide	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
56-23-5	Carbon tetrachloride	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
108-90-7	Chlorobenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
75-00-3	Chloroethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
67-66-3	Chloroform	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
74-87-3	Chloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
156-59-2	cis-1,2-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC



Sample Information

Client Sample ID: TCA_control_T2

York Sample ID: 21L0257-03

York Project (SDG) No.
21L0257

Client Project ID
100766601

Matrix
Water

Collection Date/Time
December 6, 2021 11:10 am

Date Received
12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
110-82-7	Cyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
124-48-1	Dibromochloromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
74-95-3	Dibromomethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
100-41-4	Ethyl Benzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
87-68-3	Hexachlorobutadiene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
98-82-8	Isopropylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
79-20-9	Methyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
108-87-2	Methylcyclohexane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
75-09-2	Methylene chloride	ND		ug/L	2.00	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
104-51-8	n-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
103-65-1	n-Propylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
95-47-6	o-Xylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
179601-23-1	p- & m- Xylenes	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
99-87-6	p-Isopropyltoluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
135-98-8	sec-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
100-42-5	Styrene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	1.00	20.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
98-06-6	tert-Butylbenzene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
127-18-4	Tetrachloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC



Sample Information

Client Sample ID: TCA_control_T2

York Sample ID: 21L0257-03

York Project (SDG) No.

21L0257

Client Project ID

100766601

Matrix

Water

Collection Date/Time

December 6, 2021 11:10 am

Date Received

12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-88-3	Toluene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
79-01-6	Trichloroethylene	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
75-69-4	Trichlorofluoromethane	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
108-05-4	Vinyl acetate	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
75-01-4	Vinyl Chloride	ND		ug/L	0.400	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/07/2021 12:30	12/08/2021 00:23	OC
1330-20-7	Xylenes, Total	ND		ug/L	1.20	10.0	2	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	12/07/2021 12:30	12/08/2021 00:23	OC
Surrogate Recoveries		Result	Acceptance Range								
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	101 %	69-130								
2037-26-5	Surrogate: SURR: Toluene-d8	98.3 %	81-117								
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	99.5 %	79-122								



Sample Information

Client Sample ID: TCA_treated_T2

York Sample ID: 21L0257-04

York Project (SDG) No.
21L0257

Client Project ID
100766601

Matrix
Water

Collection Date/Time
December 6, 2021 11:10 am

Date Received
12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
71-55-6	1,1,1-Trichloroethane	340		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
79-00-5	1,1,2-Trichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
75-34-3	1,1-Dichloroethane	38.4		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
75-35-4	1,1-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
563-58-6	1,1-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	12/15/2021 12:30	12/16/2021 06:34	BMT
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
96-18-4	1,2,3-Trichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
106-93-4	1,2-Dibromoethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
95-50-1	1,2-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
107-06-2	1,2-Dichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
78-87-5	1,2-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
541-73-1	1,3-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
142-28-9	1,3-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
106-46-7	1,4-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
123-91-1	1,4-Dioxane	ND		ug/L	200	500	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT



Sample Information

Client Sample ID: TCA_treated_T2

York Sample ID: 21L0257-04

York Project (SDG) No.
21L0257

Client Project ID
100766601

Matrix
Water

Collection Date/Time
December 6, 2021 11:10 am

Date Received
12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
594-20-7	2,2-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
78-93-3	2-Butanone	215		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
95-49-8	2-Chlorotoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
591-78-6	2-Hexanone	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
106-43-4	4-Chlorotoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
108-10-1	4-Methyl-2-pentanone	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
67-64-1	Acetone	27.6		ug/L	5.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
107-02-8	Acrolein	36.0		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
107-13-1	Acrylonitrile	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
71-43-2	Benzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
108-86-1	Bromobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
74-97-5	Bromochloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
75-27-4	Bromodichloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
75-25-2	Bromoform	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
74-83-9	Bromomethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
75-15-0	Carbon disulfide	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
56-23-5	Carbon tetrachloride	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
108-90-7	Chlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
75-00-3	Chloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
67-66-3	Chloroform	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
74-87-3	Chloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
156-59-2	cis-1,2-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT



Sample Information

Client Sample ID: TCA_treated_T2

York Sample ID: 21L0257-04

York Project (SDG) No.
21L0257

Client Project ID
100766601

Matrix
Water

Collection Date/Time
December 6, 2021 11:10 am

Date Received
12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
110-82-7	Cyclohexane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
124-48-1	Dibromochloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
74-95-3	Dibromomethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
75-71-8	Dichlorodifluoromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
100-41-4	Ethyl Benzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
87-68-3	Hexachlorobutadiene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
98-82-8	Isopropylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
79-20-9	Methyl acetate	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
108-87-2	Methylcyclohexane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
75-09-2	Methylene chloride	188	B	ug/L	5.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
104-51-8	n-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
103-65-1	n-Propylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
95-47-6	o-Xylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
179601-23-1	p- & m- Xylenes	ND		ug/L	2.50	50.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
99-87-6	p-Isopropyltoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
135-98-8	sec-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
100-42-5	Styrene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	2.50	50.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
98-06-6	tert-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
127-18-4	Tetrachloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT



Sample Information

Client Sample ID: TCA_treated_T2

York Sample ID: 21L0257-04

York Project (SDG) No.
21L0257

Client Project ID
100766601

Matrix
Water

Collection Date/Time
December 6, 2021 11:10 am

Date Received
12/06/2021

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-88-3	Toluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
79-01-6	Trichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
75-69-4	Trichlorofluoromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
108-05-4	Vinyl acetate	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
75-01-4	Vinyl Chloride	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	12/15/2021 12:30	12/16/2021 06:34	BMT
1330-20-7	Xylenes, Total	ND		ug/L	3.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	12/15/2021 12:30	12/16/2021 06:34	BMT
Surrogate Recoveries		Result		Acceptance Range							
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	110 %		69-130							
2037-26-5	Surrogate: SURR: Toluene-d8	105 %		81-117							
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	146 %	S-04	79-122							



Analytical Batch Summary

Batch ID: BL11551

Preparation Method: EPA 5030B

Prepared By: OC

YORK Sample ID	Client Sample ID	Preparation Date
21L0257-01	VC_control_T2	12/07/21
21L0257-02	VC_treated_T2	12/07/21
21L0257-03	TCA_control_T2	12/07/21
BL11551-BLK1	Blank	12/07/21
BL11551-BS1	LCS	12/07/21

Batch ID: BL12164

Preparation Method: EPA 5030B

Prepared By: OC

YORK Sample ID	Client Sample ID	Preparation Date
21L0257-04	TCA_treated_T2	12/15/21
BL12164-BLK1	Blank	12/15/21
BL12164-BS1	LCS	12/15/21
BL12164-BSD1	LCS Dup	12/15/21



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BL11551 - EPA 5030B

Blank (BL11551-BLK1)	Blank									Prepared & Analyzed: 12/07/2021
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L							
1,1,1-Trichloroethane	ND	0.500	"							
1,1,2,2-Tetrachloroethane	ND	0.500	"							
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.500	"							
1,1,2-Trichloroethane	ND	0.500	"							
1,1-Dichloroethane	ND	0.500	"							
1,1-Dichloroethylene	ND	0.500	"							
1,1-Dichloropropylene	ND	0.500	"							
1,2,3-Trichlorobenzene	ND	0.500	"							
1,2,3-Trichloropropane	ND	0.500	"							
1,2,4-Trichlorobenzene	ND	0.500	"							
1,2,4-Trimethylbenzene	ND	0.500	"							
1,2-Dibromo-3-chloropropane	ND	0.500	"							
1,2-Dibromoethane	ND	0.500	"							
1,2-Dichlorobenzene	ND	0.500	"							
1,2-Dichloroethane	ND	0.500	"							
1,2-Dichloropropane	ND	0.500	"							
1,3,5-Trimethylbenzene	ND	0.500	"							
1,3-Dichlorobenzene	ND	0.500	"							
1,3-Dichloropropane	ND	0.500	"							
1,4-Dichlorobenzene	ND	0.500	"							
1,4-Dioxane	ND	80.0	"							
2,2-Dichloropropane	ND	0.500	"							
2-Butanone	ND	0.500	"							
2-Chlorotoluene	ND	0.500	"							
2-Hexanone	ND	0.500	"							
4-Chlorotoluene	ND	0.500	"							
4-Methyl-2-pentanone	ND	0.500	"							
Acetone	ND	2.00	"							
Acrolein	ND	0.500	"							
Acrylonitrile	ND	0.500	"							
Benzene	ND	0.500	"							
Bromobenzene	ND	0.500	"							
Bromochloromethane	ND	0.500	"							
Bromodichloromethane	ND	0.500	"							
Bromoform	ND	0.500	"							
Bromomethane	ND	0.500	"							
Carbon disulfide	ND	0.500	"							
Carbon tetrachloride	ND	0.500	"							
Chlorobenzene	ND	0.500	"							
Chloroethane	ND	0.500	"							
Chloroform	ND	0.500	"							
Chloromethane	ND	0.500	"							
cis-1,2-Dichloroethylene	ND	0.500	"							
cis-1,3-Dichloropropylene	ND	0.500	"							
Cyclohexane	ND	0.500	"							
Dibromochloromethane	ND	0.500	"							
Dibromomethane	ND	0.500	"							
Dichlorodifluoromethane	ND	0.500	"							
Ethyl Benzene	ND	0.500	"							



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BL11551 - EPA 5030B

Blank (BL11551-BLK1)	Blank	Prepared & Analyzed: 12/07/2021									
Hexachlorobutadiene	ND	0.500	ug/L								
Isopropylbenzene	ND	0.500	"								
Methyl acetate	ND	0.500	"								
Methyl tert-butyl ether (MTBE)	ND	0.500	"								
Methyleyclohexane	ND	0.500	"								
Methylene chloride	ND	2.00	"								
n-Butylbenzene	ND	0.500	"								
n-Propylbenzene	ND	0.500	"								
o-Xylene	ND	0.500	"								
p- & m- Xylenes	ND	1.00	"								
p-Isopropyltoluene	ND	0.500	"								
sec-Butylbenzene	ND	0.500	"								
Styrene	ND	0.500	"								
tert-Butyl alcohol (TBA)	ND	1.00	"								
tert-Butylbenzene	ND	0.500	"								
Tetrachloroethylene	ND	0.500	"								
Toluene	ND	0.500	"								
trans-1,2-Dichloroethylene	ND	0.500	"								
trans-1,3-Dichloropropylene	ND	0.500	"								
Trichloroethylene	ND	0.500	"								
Trichlorofluoromethane	ND	0.500	"								
Vinyl acetate	ND	0.500	"								
Vinyl Chloride	ND	0.500	"								
Xylenes, Total	ND	1.50	"								
Surrogate: SURR: 1,2-Dichloroethane-d4	49.8		"	50.0		99.7	69-130				
Surrogate: SURR: Toluene-d8	49.3		"	50.0		98.6	81-117				
Surrogate: SURR: p-Bromofluorobenzene	49.9		"	50.0		99.8	79-122				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BL11551 - EPA 5030B											
LCS (BL11551-BS1)	LCS	Prepared & Analyzed: 12/07/2021									
1,1,1,2-Tetrachloroethane	49.7		ug/L	50.0		99.4	82-126				
1,1,1-Trichloroethane	50.3		"	50.0		101	78-136				
1,1,2,2-Tetrachloroethane	50.7		"	50.0		101	76-129				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	48.5		"	50.0		97.1	54-165				
1,1,2-Trichloroethane	49.5		"	50.0		98.9	82-123				
1,1-Dichloroethane	50.9		"	50.0		102	82-129				
1,1-Dichloroethylene	46.2		"	50.0		92.4	68-138				
1,1-Dichloropropylene	47.8		"	50.0		95.7	83-133				
1,2,3-Trichlorobenzene	47.5		"	50.0		95.0	76-136				
1,2,3-Trichloropropane	51.1		"	50.0		102	77-128				
1,2,4-Trichlorobenzene	47.1		"	50.0		94.3	76-137				
1,2,4-Trimethylbenzene	48.9		"	50.0		97.8	82-132				
1,2-Dibromo-3-chloropropane	52.6		"	50.0		105	45-147				
1,2-Dibromoethane	51.7		"	50.0		103	83-124				
1,2-Dichlorobenzene	48.7		"	50.0		97.4	79-123				
1,2-Dichloroethane	50.5		"	50.0		101	73-132				
1,2-Dichloropropane	50.8		"	50.0		102	78-126				
1,3,5-Trimethylbenzene	48.6		"	50.0		97.1	80-131				
1,3-Dichlorobenzene	48.6		"	50.0		97.3	86-122				
1,3-Dichloropropane	49.7		"	50.0		99.5	81-125				
1,4-Dichlorobenzene	48.2		"	50.0		96.4	85-124				
1,4-Dioxane	724		"	1050		69.0	10-349				
2,2-Dichloropropane	49.1		"	50.0		98.2	56-150				
2-Butanone	52.5		"	50.0		105	49-152				
2-Chlorotoluene	50.0		"	50.0		100	79-130				
2-Hexanone	48.4		"	50.0		96.7	51-146				
4-Chlorotoluene	49.8		"	50.0		99.6	79-128				
4-Methyl-2-pentanone	52.9		"	50.0		106	57-145				
Acetone	29.3		"	50.0		58.6	14-150				
Acrolein	75.4		"	50.0		151	10-153				
Acrylonitrile	53.5		"	50.0		107	51-150				
Benzene	50.7		"	50.0		101	85-126				
Bromobenzene	48.8		"	50.0		97.6	78-129				
Bromochloromethane	50.6		"	50.0		101	77-128				
Bromodichloromethane	49.5		"	50.0		99.0	79-128				
Bromoform	53.2		"	50.0		106	78-133				
Bromomethane	57.7		"	50.0		115	43-168				
Carbon disulfide	50.8		"	50.0		102	68-146				
Carbon tetrachloride	51.5		"	50.0		103	77-141				
Chlorobenzene	52.8		"	50.0		106	88-120				
Chloroethane	52.5		"	50.0		105	65-136				
Chloroform	51.2		"	50.0		102	82-128				
Chloromethane	60.5		"	50.0		121	43-155				
cis-1,2-Dichloroethylene	50.2		"	50.0		100	83-129				
cis-1,3-Dichloropropylene	49.6		"	50.0		99.1	80-131				
Cyclohexane	51.2		"	50.0		102	63-149				
Dibromochloromethane	50.1		"	50.0		100	80-130				
Dibromomethane	49.6		"	50.0		99.3	72-134				
Dichlorodifluoromethane	83.9		"	50.0		168	44-144	High Bias			
Ethyl Benzene	50.2		"	50.0		100	80-131				
Hexachlorobutadiene	47.3		"	50.0		94.6	67-146				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BL11551 - EPA 5030B

LCS (BL11551-BS1)	LCS	Prepared & Analyzed: 12/07/2021									
Isopropylbenzene	51.3		ug/L	50.0		103	76-140				
Methyl acetate	51.8		"	50.0		104	51-139				
Methyl tert-butyl ether (MTBE)	52.0		"	50.0		104	76-135				
Methylcyclohexane	51.1		"	50.0		102	72-143				
Methylene chloride	50.4		"	50.0		101	55-137				
n-Butylbenzene	47.2		"	50.0		94.5	79-132				
n-Propylbenzene	49.3		"	50.0		98.6	78-133				
o-Xylene	51.8		"	50.0		104	78-130				
p- & m- Xylenes	101		"	100		101	77-133				
p-Isopropyltoluene	49.1		"	50.0		98.3	81-136				
sec-Butylbenzene	49.7		"	50.0		99.3	79-137				
Styrene	50.2		"	50.0		100	67-132				
tert-Butyl alcohol (TBA)	259		"	250		104	25-162				
tert-Butylbenzene	50.5		"	50.0		101	77-138				
Tetrachloroethylene	40.2		"	50.0		80.3	82-131	Low Bias			
Toluene	49.5		"	50.0		99.0	80-127				
trans-1,2-Dichloroethylene	52.8		"	50.0		106	80-132				
trans-1,3-Dichloropropylene	49.2		"	50.0		98.4	78-131				
Trichloroethylene	50.4		"	50.0		101	82-128				
Trichlorofluoromethane	54.0		"	50.0		108	67-139				
Vinyl acetate	47.9		"	50.0		95.8	21-90	High Bias			
Vinyl Chloride	56.5		"	50.0		113	58-145				
Surrogate: SURR: 1,2-Dichloroethane-d4	49.9		"	50.0		99.8	69-130				
Surrogate: SURR: Toluene-d8	49.8		"	50.0		99.6	81-117				
Surrogate: SURR: p-Bromofluorobenzene	50.2		"	50.0		100	79-122				

Batch BL12164 - EPA 5030B

Blank (BL12164-BLK1)	Blank	Prepared & Analyzed: 12/15/2021									
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L								
1,1,1-Trichloroethane	ND	0.500	"								
1,1,2,2-Tetrachloroethane	ND	0.500	"								
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.500	"								
1,1,2-Trichloroethane	ND	0.500	"								
1,1-Dichloroethane	ND	0.500	"								
1,1-Dichloroethylene	ND	0.500	"								
1,1-Dichloropropylene	ND	0.500	"								
1,2,3-Trichlorobenzene	ND	0.500	"								
1,2,3-Trichloropropane	ND	0.500	"								
1,2,4-Trichlorobenzene	ND	0.500	"								
1,2,4-Trimethylbenzene	ND	0.500	"								
1,2-Dibromo-3-chloropropane	ND	0.500	"								
1,2-Dibromoethane	ND	0.500	"								
1,2-Dichlorobenzene	ND	0.500	"								
1,2-Dichloroethane	ND	0.500	"								
1,2-Dichloropropane	ND	0.500	"								
1,3,5-Trimethylbenzene	ND	0.500	"								
1,3-Dichlorobenzene	ND	0.500	"								
1,3-Dichloropropane	ND	0.500	"								
1,4-Dichlorobenzene	ND	0.500	"								
1,4-Dioxane	ND	80.0	"								



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BL12164 - EPA 5030B											
Blank (BL12164-BLK1)	Blank	Prepared & Analyzed: 12/15/2021									
2,2-Dichloropropane	ND	0.500	ug/L								
2-Butanone	ND	0.500	"								
2-Chlorotoluene	ND	0.500	"								
2-Hexanone	ND	0.500	"								
4-Chlorotoluene	ND	0.500	"								
4-Methyl-2-pentanone	ND	0.500	"								
Acetone	ND	2.00	"								
Acrolein	ND	0.500	"								
Acrylonitrile	ND	0.500	"								
Benzene	ND	0.500	"								
Bromobenzene	ND	0.500	"								
Bromochloromethane	ND	0.500	"								
Bromodichloromethane	ND	0.500	"								
Bromoform	ND	0.500	"								
Bromomethane	ND	0.500	"								
Carbon disulfide	ND	0.500	"								
Carbon tetrachloride	ND	0.500	"								
Chlorobenzene	ND	0.500	"								
Chloroethane	ND	0.500	"								
Chloroform	ND	0.500	"								
Chloromethane	ND	0.500	"								
cis-1,2-Dichloroethylene	ND	0.500	"								
cis-1,3-Dichloropropylene	ND	0.500	"								
Cyclohexane	ND	0.500	"								
Dibromochloromethane	ND	0.500	"								
Dibromomethane	ND	0.500	"								
Dichlorodifluoromethane	ND	0.500	"								
Ethyl Benzene	ND	0.500	"								
Hexachlorobutadiene	ND	0.500	"								
Isopropylbenzene	ND	0.500	"								
Methyl acetate	ND	0.500	"								
Methyl tert-butyl ether (MTBE)	ND	0.500	"								
Methylcyclohexane	ND	0.500	"								
Methylene chloride	45.4	2.00	"								
n-Butylbenzene	ND	0.500	"								
n-Propylbenzene	ND	0.500	"								
o-Xylene	ND	0.500	"								
p- & m- Xylenes	ND	1.00	"								
p-Isopropyltoluene	ND	0.500	"								
sec-Butylbenzene	ND	0.500	"								
Styrene	ND	0.500	"								
tert-Butyl alcohol (TBA)	ND	1.00	"								
tert-Butylbenzene	ND	0.500	"								
Tetrachloroethylene	ND	0.500	"								
Toluene	ND	0.500	"								
trans-1,2-Dichloroethylene	ND	0.500	"								
trans-1,3-Dichloropropylene	ND	0.500	"								
Trichloroethylene	ND	0.500	"								
Trichlorofluoromethane	ND	0.500	"								
Vinyl acetate	ND	0.500	"								
Vinyl Chloride	ND	0.500	"								



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BL12164 - EPA 5030B											
Blank (BL12164-BLK1)	Blank		Prepared & Analyzed: 12/15/2021								
Xylenes, Total	ND	1.50	ug/L								
Surrogate: SURR: 1,2-Dichloroethane-d4	51.0		"	50.0		102	69-130				
Surrogate: SURR: Toluene-d8	48.2		"	50.0		96.4	81-117				
Surrogate: SURR: p-Bromofluorobenzene	47.8		"	50.0		95.5	79-122				
LCS (BL12164-BS1)	LCS		Prepared & Analyzed: 12/15/2021								
1,1,1,2-Tetrachloroethane	48.6		ug/L	50.0		97.2	82-126				
1,1,1-Trichloroethane	54.1		"	50.0		108	78-136				
1,1,2,2-Tetrachloroethane	47.6		"	50.0		95.1	76-129				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	59.0		"	50.0		118	54-165				
1,1,2-Trichloroethane	48.0		"	50.0		96.0	82-123				
1,1-Dichloroethane	52.9		"	50.0		106	82-129				
1,1-Dichloroethylene	55.8		"	50.0		112	68-138				
1,1-Dichloropropylene	49.6		"	50.0		99.2	83-133				
1,2,3-Trichlorobenzene	44.7		"	50.0		89.4	76-136				
1,2,3-Trichloropropane	48.2		"	50.0		96.3	77-128				
1,2,4-Trichlorobenzene	44.8		"	50.0		89.5	76-137				
1,2,4-Trimethylbenzene	47.4		"	50.0		94.7	82-132				
1,2-Dibromo-3-chloropropane	45.7		"	50.0		91.4	45-147				
1,2-Dibromoethane	49.4		"	50.0		98.9	83-124				
1,2-Dichlorobenzene	47.4		"	50.0		94.9	79-123				
1,2-Dichloroethane	53.5		"	50.0		107	73-132				
1,2-Dichloropropane	47.5		"	50.0		95.0	78-126				
1,3,5-Trimethylbenzene	46.4		"	50.0		92.9	80-131				
1,3-Dichlorobenzene	47.6		"	50.0		95.2	86-122				
1,3-Dichloropropane	46.6		"	50.0		93.3	81-125				
1,4-Dichlorobenzene	47.0		"	50.0		94.1	85-124				
1,4-Dioxane	627		"	1050		59.7	10-349				
2,2-Dichloropropane	51.7		"	50.0		103	56-150				
2-Butanone	49.3		"	50.0		98.6	49-152				
2-Chlorotoluene	47.6		"	50.0		95.3	79-130				
2-Hexanone	41.2		"	50.0		82.4	51-146				
4-Chlorotoluene	47.2		"	50.0		94.4	79-128				
4-Methyl-2-pentanone	44.7		"	50.0		89.4	57-145				
Acetone	31.1		"	50.0		62.2	14-150				
Acrolein	95.7		"	50.0		191	10-153	High Bias			
Acrylonitrile	52.5		"	50.0		105	51-150				
Benzene	54.3		"	50.0		109	85-126				
Bromobenzene	44.3		"	50.0		88.7	78-129				
Bromochloromethane	53.3		"	50.0		107	77-128				
Bromodichloromethane	47.7		"	50.0		95.3	79-128				
Bromoform	49.4		"	50.0		98.7	78-133				
Bromomethane	79.4		"	50.0		159	43-168				
Carbon disulfide	61.6		"	50.0		123	68-146				
Carbon tetrachloride	54.7		"	50.0		109	77-141				
Chlorobenzene	51.3		"	50.0		103	88-120				
Chloroethane	70.8		"	50.0		142	65-136	High Bias			
Chloroform	54.4		"	50.0		109	82-128				
Chloromethane	62.3		"	50.0		125	43-155				
cis-1,2-Dichloroethylene	52.2		"	50.0		104	83-129				
cis-1,3-Dichloropropylene	47.1		"	50.0		94.1	80-131				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BL12164 - EPA 5030B

LCS (BL12164-BS1)	LCS	Prepared & Analyzed: 12/15/2021									
Cyclohexane	50.7		ug/L	50.0		101	63-149				
Dibromochloromethane	47.9		"	50.0		95.7	80-130				
Dibromomethane	48.9		"	50.0		97.7	72-134				
Dichlorodifluoromethane	93.1		"	50.0		186	44-144	High Bias			
Ethyl Benzene	49.6		"	50.0		99.2	80-131				
Hexachlorobutadiene	41.6		"	50.0		83.2	67-146				
Isopropylbenzene	48.1		"	50.0		96.3	76-140				
Methyl acetate	48.3		"	50.0		96.7	51-139				
Methyl tert-butyl ether (MTBE)	53.1		"	50.0		106	76-135				
Methylcyclohexane	47.4		"	50.0		94.7	72-143				
Methylene chloride	129		"	50.0		257	55-137	High Bias			
n-Butylbenzene	46.3		"	50.0		92.7	79-132				
n-Propylbenzene	47.5		"	50.0		95.0	78-133				
o-Xylene	49.8		"	50.0		99.6	78-130				
p- & m- Xylenes	98.9		"	100		98.9	77-133				
p-Isopropyltoluene	47.6		"	50.0		95.3	81-136				
sec-Butylbenzene	47.6		"	50.0		95.2	79-137				
Styrene	49.3		"	50.0		98.6	67-132				
tert-Butyl alcohol (TBA)	235		"	250		93.9	25-162				
tert-Butylbenzene	47.5		"	50.0		95.0	77-138				
Tetrachloroethylene	39.2		"	50.0		78.4	82-131	Low Bias			
Toluene	49.1		"	50.0		98.2	80-127				
trans-1,2-Dichloroethylene	53.6		"	50.0		107	80-132				
trans-1,3-Dichloropropylene	46.8		"	50.0		93.6	78-131				
Trichloroethylene	47.8		"	50.0		95.5	82-128				
Trichlorofluoromethane	72.5		"	50.0		145	67-139	High Bias			
Vinyl acetate	49.4		"	50.0		98.8	21-90	High Bias			
Vinyl Chloride	68.5		"	50.0		137	58-145				
Surrogate: SURRE: 1,2-Dichloroethane-d4	51.8		"	50.0		104	69-130				
Surrogate: SURRE: Toluene-d8	47.7		"	50.0		95.4	81-117				
Surrogate: SURRE: p-Bromofluorobenzene	46.6		"	50.0		93.3	79-122				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BL12164 - EPA 5030B											
LCS Dup (BL12164-BSD1)	LCS Dup		Prepared & Analyzed: 12/15/2021								
1,1,1,2-Tetrachloroethane	49.5		ug/L	50.0		99.0	82-126		1.79	30	
1,1,1-Trichloroethane	56.5		"	50.0		113	78-136		4.27	30	
1,1,2,2-Tetrachloroethane	49.5		"	50.0		99.0	76-129		4.06	30	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	61.5		"	50.0		123	54-165		4.12	30	
1,1,2-Trichloroethane	49.2		"	50.0		98.4	82-123		2.43	30	
1,1-Dichloroethane	54.6		"	50.0		109	82-129		3.05	30	
1,1-Dichloroethylene	58.0		"	50.0		116	68-138		3.92	30	
1,1-Dichloropropylene	51.3		"	50.0		103	83-133		3.37	30	
1,2,3-Trichlorobenzene	43.2		"	50.0		86.3	76-136		3.46	30	
1,2,3-Trichloropropane	48.3		"	50.0		96.5	77-128		0.249	30	
1,2,4-Trichlorobenzene	41.2		"	50.0		82.3	76-137		8.33	30	
1,2,4-Trimethylbenzene	47.7		"	50.0		95.4	82-132		0.715	30	
1,2-Dibromo-3-chloropropane	45.6		"	50.0		91.2	45-147		0.197	30	
1,2-Dibromoethane	49.8		"	50.0		99.6	83-124		0.746	30	
1,2-Dichlorobenzene	48.0		"	50.0		96.0	79-123		1.13	30	
1,2-Dichloroethane	55.4		"	50.0		111	73-132		3.62	30	
1,2-Dichloropropane	49.0		"	50.0		98.0	78-126		3.09	30	
1,3,5-Trimethylbenzene	47.5		"	50.0		95.0	80-131		2.21	30	
1,3-Dichlorobenzene	46.8		"	50.0		93.7	86-122		1.61	30	
1,3-Dichloropropane	47.8		"	50.0		95.5	81-125		2.37	30	
1,4-Dichlorobenzene	46.4		"	50.0		92.7	85-124		1.50	30	
1,4-Dioxane	564		"	1050		53.7	10-349		10.7	30	
2,2-Dichloropropane	54.6		"	50.0		109	56-150		5.57	30	
2-Butanone	50.0		"	50.0		100	49-152		1.41	30	
2-Chlorotoluene	48.2		"	50.0		96.3	79-130		1.09	30	
2-Hexanone	41.1		"	50.0		82.3	51-146		0.146	30	
4-Chlorotoluene	47.3		"	50.0		94.6	79-128		0.212	30	
4-Methyl-2-pentanone	45.5		"	50.0		91.0	57-145		1.77	30	
Acetone	32.1		"	50.0		64.3	14-150		3.23	30	
Acrolein	99.4		"	50.0		199	10-153	High Bias	3.80	30	
Acrylonitrile	52.7		"	50.0		105	51-150		0.323	30	
Benzene	55.8		"	50.0		112	85-126		2.58	30	
Bromobenzene	45.5		"	50.0		91.0	78-129		2.56	30	
Bromochloromethane	53.9		"	50.0		108	77-128		1.14	30	
Bromodichloromethane	49.2		"	50.0		98.4	79-128		3.20	30	
Bromoform	50.0		"	50.0		100	78-133		1.31	30	
Bromomethane	81.6		"	50.0		163	43-168		2.77	30	
Carbon disulfide	64.0		"	50.0		128	68-146		3.74	30	
Carbon tetrachloride	57.0		"	50.0		114	77-141		4.14	30	
Chlorobenzene	52.4		"	50.0		105	88-120		2.08	30	
Chloroethane	73.9		"	50.0		148	65-136	High Bias	4.33	30	
Chloroform	56.0		"	50.0		112	82-128		2.86	30	
Chloromethane	64.8		"	50.0		130	43-155		3.99	30	
cis-1,2-Dichloroethylene	53.1		"	50.0		106	83-129		1.61	30	
cis-1,3-Dichloropropylene	48.1		"	50.0		96.3	80-131		2.25	30	
Cyclohexane	52.9		"	50.0		106	63-149		4.29	30	
Dibromochloromethane	49.1		"	50.0		98.1	80-130		2.48	30	
Dibromomethane	49.5		"	50.0		99.0	72-134		1.32	30	
Dichlorodifluoromethane	97.0		"	50.0		194	44-144	High Bias	4.09	30	
Ethyl Benzene	50.6		"	50.0		101	80-131		2.11	30	
Hexachlorobutadiene	43.4		"	50.0		86.8	67-146		4.23	30	



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BL12164 - EPA 5030B											
LCS Dup (BL12164-BSD1)	LCS Dup		Prepared & Analyzed: 12/15/2021								
Isopropylbenzene	50.2		ug/L	50.0		100	76-140		4.29	30	
Methyl acetate	48.9		"	50.0		97.9	51-139		1.23	30	
Methyl tert-butyl ether (MTBE)	54.0		"	50.0		108	76-135		1.72	30	
Methylcyclohexane	49.8		"	50.0		99.5	72-143		4.94	30	
Methylene chloride	138		"	50.0		276	55-137	High Bias	6.97	30	
n-Butylbenzene	45.7		"	50.0		91.3	79-132		1.46	30	
n-Propylbenzene	48.4		"	50.0		96.7	78-133		1.82	30	
o-Xylene	51.1		"	50.0		102	78-130		2.48	30	
p- & m- Xylenes	101		"	100		101	77-133		1.89	30	
p-Isopropyltoluene	48.2		"	50.0		96.4	81-136		1.21	30	
sec-Butylbenzene	49.2		"	50.0		98.3	79-137		3.18	30	
Styrene	50.3		"	50.0		101	67-132		1.93	30	
tert-Butyl alcohol (TBA)	234		"	250		93.8	25-162		0.141	30	
tert-Butylbenzene	50.1		"	50.0		100	77-138		5.39	30	
Tetrachloroethylene	39.6		"	50.0		79.1	82-131	Low Bias	0.940	30	
Toluene	50.5		"	50.0		101	80-127		2.73	30	
trans-1,2-Dichloroethylene	56.4		"	50.0		113	80-132		5.06	30	
trans-1,3-Dichloropropylene	47.2		"	50.0		94.5	78-131		0.979	30	
Trichloroethylene	49.0		"	50.0		98.0	82-128		2.62	30	
Trichlorofluoromethane	75.6		"	50.0		151	67-139	High Bias	4.28	30	
Vinyl acetate	48.2		"	50.0		96.5	21-90	High Bias	2.38	30	
Vinyl Chloride	70.5		"	50.0		141	58-145		2.78	30	
<i>Surrogate: SURR: 1,2-Dichloroethane-d4</i>	<i>51.7</i>		<i>"</i>	<i>50.0</i>		<i>103</i>	<i>69-130</i>				
<i>Surrogate: SURR: Toluene-d8</i>	<i>48.0</i>		<i>"</i>	<i>50.0</i>		<i>96.1</i>	<i>81-117</i>				
<i>Surrogate: SURR: p-Bromofluorobenzene</i>	<i>47.0</i>		<i>"</i>	<i>50.0</i>		<i>94.0</i>	<i>79-122</i>				



Volatile Analysis Sample Containers

Lab ID	Client Sample ID	Volatile Sample Container
21L0257-01	VC_control_T2	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C
21L0257-02	VC_treated_T2	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C
21L0257-03	TCA_control_T2	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C
21L0257-04	TCA_treated_T2	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C



Sample and Data Qualifiers Relating to This Work Order

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QL-02	This LCS analyte is outside Laboratory Recovery limits due the analyte behavior using the referenced method. The reference method has certain limitations with respect to analytes of this nature.
B	Analyte is found in the associated analysis batch blank. For volatiles, methylene chloride and acetone are common lab contaminants.

Definitions and Other Explanations

*	Analyte is not certified or the state of the samples origination does not offer certification for the Analyte.
ND	NOT DETECTED - the analyte is not detected at the Reported to level (LOQ/RL or LOD/MDL)
RL	REPORTING LIMIT - the minimum reportable value based upon the lowest point in the analyte calibration curve.
LOQ	LIMIT OF QUANTITATION - the minimum concentration of a target analyte that can be reported within a specified degree of confidence. This is the lowest point in an analyte calibration curve that has been subjected to all steps of the processing/analysis and verified to meet defined criteria. This is based upon NELAC 2009 Standards and applies to all analyses.
LOD	LIMIT OF DETECTION - a verified estimate of the minimum concentration of a substance in a given matrix that an analytical process can reliably detect. This is based upon NELAC 2009 Standards and applies to all analyses conducted under the auspices of EPA SW-846.
MDL	METHOD DETECTION LIMIT - a statistically derived estimate of the minimum amount of a substance an analytical system can reliably detect with a 99% confidence that the concentration of the substance is greater than zero. This is based upon 40 CFR Part 136 Appendix B and applies only to EPA 600 and 200 series methods.
Reported to	This indicates that the data for a particular analysis is reported to either the LOD/MDL, or the LOQ/RL. In cases where the "Reported to" is located above the LOD/MDL, any value between this and the LOQ represents an estimated value which is "J" flagged accordingly. This applies to volatile and semi-volatile target compounds only.
NR	Not reported
RPD	Relative Percent Difference
Wet	The data has been reported on an as-received (wet weight) basis
Low Bias	Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit. The data user should take note that this analyte may be biased low but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
High Bias	High Bias flag indicates that the recovery of the flagged analyte is above the laboratory or regulatory upper control limit. The data user should take note that this analyte may be biased high but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
Non-Dir.	Non-dir. flag (Non-Directional Bias) indicates that the Relative Percent Difference (RPD) (a measure of precision) among the MS and MSD data is outside the laboratory or regulatory control limit. This alerts the data user where the MS and MSD are from site-specific samples that the RPD is high due to either non-homogeneous distribution of target analyte between the MS/MSD or indicates poor reproducibility for other reasons.

If EPA SW-846 method 8270 is included herein it is noted that the target compound N-nitrosodiphenylamine (NDPA) decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine (DPA). These results could actually represent 100% DPA, 100% NDPA or some combination of the two. For this reason, York reports the combined result for n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration as Diphenylamine.

If Total PCBs are detected and the target aroclors reported are "Not detected", the Total PCB value is reported due to the presence of either or both Aroclors 1262 and 1268 which are non-target aroclors for some regulatory lists.

2-chloroethylvinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

Certification for pH is no longer offered by NYDOH ELAP.

Semi-Volatile and Volatile analyses are reported down to the LOD/MDL, with values between the LOD/MDL and the LOQ being "J" flagged as estimated results.



For analyses by EPA SW-846-8270D, the Limit of Quantitation (LOQ) reported for benzidine is based upon the lowest standard used for calibration and is not a verified LOQ due to this compound's propensity for oxidative losses during extraction/concentration procedures and non-reproducible chromatographic performance.





Technical Report

prepared for:

Langan Engineering & Environmental Services (NJ)

300 Kimball Drive, 4th Floor

Parsipanny NJ, 07054-2172

Attention: Aroona Boodram

Report Date: 01/14/2022

Client Project ID: 100766601

York Project (SDG) No.: 22A0078

Revision No. 1.0



CT Cert. No. PH-0723

New Jersey Cert. No. CT005 and NY037

New York Cert. Nos. 10854 and 12058

PA Cert. No. 68-04440

Report Date: 01/14/2022
Client Project ID: 100766601
York Project (SDG) No.: 22A0078

Langan Engineering & Environmental Services (NJ)
300 Kimball Drive, 4th Floor
Parsipanny NJ, 07054-2172
Attention: Aroona Boodram

Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on January 04, 2022 and listed below. The project was identified as your project: **100766601**.

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the customary acceptance requirements for environmental samples except those indicated under the Sample and Analysis Qualifiers section of this report.

All analyses met the method and laboratory standard operating procedure requirements except as indicated by any data flags, the meaning of which are explained in the Sample and Data Qualifiers Relating to This Work Order section of this report and case narrative if applicable.

The results of the analyses, which are all reported on dry weight basis (soils) unless otherwise noted, are detailed in the following pages.

Please contact Client Services at 203.325.1371 with any questions regarding this report.

<u>York Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>
22A0078-01	TCA_C	Water	01/04/2022	01/04/2022
22A0078-02	TCA_T	Water	01/04/2022	01/04/2022
22A0078-03	VC_C	Water	01/04/2022	01/04/2022
22A0078-04	VC_T	Water	01/04/2022	01/04/2022

General Notes for York Project (SDG) No.: 22A0078

1. The RLs and MDLs (Reporting Limit and Method Detection Limit respectively) reported are adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. The RL(REPORTING LIMIT) is based upon the lowest standard utilized for the calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All analyses conducted met method or Laboratory SOP requirements. See the Sample and Data Qualifiers Section for further information.
6. It is noted that no analyses reported herein were subcontracted to another laboratory, unless noted in the report.
7. This report reflects results that relate only to the samples submitted on the attached chain-of-custody form(s) received by York.
8. Analyses conducted at York Analytical Laboratories, Inc. Stratford, CT are indicated by NY Cert. No. 10854; those conducted at York Analytical Laboratories, Inc., Richmond Hill, NY are indicated by NY Cert. No. 12058.

Approved By



Cassie L. Mosher
Laboratory Manager

Date: 01/14/2022





Sample Information

Client Sample ID: TCA_C

York Sample ID: 22A0078-01

York Project (SDG) No.

22A0078

Client Project ID

100766601

Matrix

Water

Collection Date/Time

January 4, 2022 12:30 pm

Date Received

01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
71-55-6	1,1,1-Trichloroethane	299		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
79-00-5	1,1,2-Trichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
75-34-3	1,1-Dichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
75-35-4	1,1-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
563-58-6	1,1-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	01/11/2022 12:30	01/12/2022 01:15	BMT
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
96-18-4	1,2,3-Trichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
106-93-4	1,2-Dibromoethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
95-50-1	1,2-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
107-06-2	1,2-Dichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
78-87-5	1,2-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
541-73-1	1,3-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
142-28-9	1,3-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
106-46-7	1,4-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT



Sample Information

Client Sample ID: TCA_C

York Sample ID: 22A0078-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

22A0078

100766601

Water

January 4, 2022 12:30 pm

01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
123-91-1	1,4-Dioxane	ND		ug/L	200	500	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
594-20-7	2,2-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
78-93-3	2-Butanone	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
95-49-8	2-Chlorotoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
591-78-6	2-Hexanone	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
106-43-4	4-Chlorotoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
108-10-1	4-Methyl-2-pentanone	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
67-64-1	Acetone	ND		ug/L	5.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
107-02-8	Acrolein	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
107-13-1	Acrylonitrile	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
71-43-2	Benzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
108-86-1	Bromobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
74-97-5	Bromochloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
75-27-4	Bromodichloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
75-25-2	Bromoform	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
74-83-9	Bromomethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
75-15-0	Carbon disulfide	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
56-23-5	Carbon tetrachloride	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
108-90-7	Chlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
75-00-3	Chloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
67-66-3	Chloroform	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
74-87-3	Chloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT

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Sample Information

Client Sample ID: TCA_C

York Sample ID: 22A0078-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

22A0078

100766601

Water

January 4, 2022 12:30 pm

01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
156-59-2	cis-1,2-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
110-82-7	Cyclohexane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
124-48-1	Dibromochloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
74-95-3	Dibromomethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
75-71-8	Dichlorodifluoromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
100-41-4	Ethyl Benzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
87-68-3	Hexachlorobutadiene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
98-82-8	Isopropylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
79-20-9	Methyl acetate	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
108-87-2	Methylcyclohexane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
75-09-2	Methylene chloride	6.70	J, B	ug/L	5.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
104-51-8	n-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
103-65-1	n-Propylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
95-47-6	o-Xylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
179601-23-1	p- & m- Xylenes	ND		ug/L	2.50	50.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
99-87-6	p-Isopropyltoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
135-98-8	sec-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
100-42-5	Styrene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	2.50	50.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
98-06-6	tert-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT

120 RESEARCH DRIVE

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Sample Information

Client Sample ID: TCA_C

York Sample ID: 22A0078-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

22A0078

100766601

Water

January 4, 2022 12:30 pm

01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
127-18-4	Tetrachloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
108-88-3	Toluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
79-01-6	Trichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
75-69-4	Trichlorofluoromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
108-05-4	Vinyl acetate	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
75-01-4	Vinyl Chloride	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:15	BMT
1330-20-7	Xylenes, Total	ND		ug/L	3.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	01/11/2022 12:30	01/12/2022 01:15	BMT
Surrogate Recoveries		Result	Acceptance Range								
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	101 %	69-130								
2037-26-5	Surrogate: SURR: Toluene-d8	94.1 %	81-117								
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	99.3 %	79-122								



Sample Information

Client Sample ID: TCA_T

York Sample ID: 22A0078-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

22A0078

100766601

Water

January 4, 2022 12:35 pm

01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
71-55-6	1,1,1-Trichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
79-00-5	1,1,2-Trichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
75-34-3	1,1-Dichloroethane	30.3		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
75-35-4	1,1-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
563-58-6	1,1-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	01/11/2022 12:30	01/12/2022 01:42	BMT
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
96-18-4	1,2,3-Trichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
106-93-4	1,2-Dibromoethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
95-50-1	1,2-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
107-06-2	1,2-Dichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
78-87-5	1,2-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
541-73-1	1,3-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
142-28-9	1,3-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
106-46-7	1,4-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
123-91-1	1,4-Dioxane	ND		ug/L	200	500	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT

120 RESEARCH DRIVE

STRATFORD, CT 06615



132-02 89th AVENUE

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Sample Information

Client Sample ID: TCA_T

York Sample ID: 22A0078-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

22A0078

100766601

Water

January 4, 2022 12:35 pm

01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
594-20-7	2,2-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
78-93-3	2-Butanone	132		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
95-49-8	2-Chlorotoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
591-78-6	2-Hexanone	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
106-43-4	4-Chlorotoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
108-10-1	4-Methyl-2-pentanone	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
67-64-1	Acetone	ND		ug/L	5.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
107-02-8	Acrolein	25.8		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
107-13-1	Acrylonitrile	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
71-43-2	Benzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
108-86-1	Bromobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
74-97-5	Bromochloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
75-27-4	Bromodichloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
75-25-2	Bromoform	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
74-83-9	Bromomethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
75-15-0	Carbon disulfide	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
56-23-5	Carbon tetrachloride	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
108-90-7	Chlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
75-00-3	Chloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
67-66-3	Chloroform	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
74-87-3	Chloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
156-59-2	cis-1,2-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT





Sample Information

Client Sample ID: TCA_T

York Sample ID: 22A0078-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

22A0078

100766601

Water

January 4, 2022 12:35 pm

01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
110-82-7	Cyclohexane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
124-48-1	Dibromochloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
74-95-3	Dibromomethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
75-71-8	Dichlorodifluoromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
100-41-4	Ethyl Benzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
87-68-3	Hexachlorobutadiene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
98-82-8	Isopropylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
79-20-9	Methyl acetate	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
108-87-2	Methylcyclohexane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
75-09-2	Methylene chloride	13.6	J, B	ug/L	5.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
104-51-8	n-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
103-65-1	n-Propylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
95-47-6	o-Xylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
179601-23-1	p- & m- Xylenes	ND		ug/L	2.50	50.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
99-87-6	p-Isopropyltoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
135-98-8	sec-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
100-42-5	Styrene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	2.50	50.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
98-06-6	tert-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
127-18-4	Tetrachloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT

120 RESEARCH DRIVE

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Sample Information

Client Sample ID: TCA_T

York Sample ID: 22A0078-02

York Project (SDG) No.

22A0078

Client Project ID

100766601

Matrix

Water

Collection Date/Time

January 4, 2022 12:35 pm

Date Received

01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-88-3	Toluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
79-01-6	Trichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
75-69-4	Trichlorofluoromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
108-05-4	Vinyl acetate	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
75-01-4	Vinyl Chloride	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 01:42	BMT
1330-20-7	Xylenes, Total	ND		ug/L	3.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	01/11/2022 12:30	01/12/2022 01:42	BMT
Surrogate Recoveries		Result		Acceptance Range							
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	104 %		69-130							
2037-26-5	Surrogate: SURR: Toluene-d8	98.0 %		81-117							
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	127 %	S-04	79-122							



Sample Information

Client Sample ID: VC_C

York Sample ID: 22A0078-03

York Project (SDG) No.

22A0078

Client Project ID

100766601

Matrix

Water

Collection Date/Time

January 4, 2022 12:40 pm

Date Received

01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
71-55-6	1,1,1-Trichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
79-00-5	1,1,2-Trichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
75-34-3	1,1-Dichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
75-35-4	1,1-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
563-58-6	1,1-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	01/11/2022 12:30	01/12/2022 02:08	BMT
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
96-18-4	1,2,3-Trichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
106-93-4	1,2-Dibromoethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
95-50-1	1,2-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
107-06-2	1,2-Dichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
78-87-5	1,2-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
541-73-1	1,3-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
142-28-9	1,3-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
106-46-7	1,4-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
123-91-1	1,4-Dioxane	ND		ug/L	200	500	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT

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132-02 89th AVENUE

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RICHMOND HILL, NY 11418

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Sample Information

Client Sample ID: VC_C

York Sample ID: 22A0078-03

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

22A0078

100766601

Water

January 4, 2022 12:40 pm

01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
594-20-7	2,2-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
78-93-3	2-Butanone	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
95-49-8	2-Chlorotoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
591-78-6	2-Hexanone	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
106-43-4	4-Chlorotoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
108-10-1	4-Methyl-2-pentanone	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
67-64-1	Acetone	ND		ug/L	5.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
107-02-8	Acrolein	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
107-13-1	Acrylonitrile	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
71-43-2	Benzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
108-86-1	Bromobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
74-97-5	Bromochloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
75-27-4	Bromodichloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
75-25-2	Bromoform	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
74-83-9	Bromomethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
75-15-0	Carbon disulfide	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
56-23-5	Carbon tetrachloride	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
108-90-7	Chlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
75-00-3	Chloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
67-66-3	Chloroform	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
74-87-3	Chloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
156-59-2	cis-1,2-Dichloroethylene	254		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT

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Sample Information

Client Sample ID: VC_C

York Sample ID: 22A0078-03

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

22A0078

100766601

Water

January 4, 2022 12:40 pm

01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
110-82-7	Cyclohexane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
124-48-1	Dibromochloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
74-95-3	Dibromomethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
75-71-8	Dichlorodifluoromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
100-41-4	Ethyl Benzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
87-68-3	Hexachlorobutadiene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
98-82-8	Isopropylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
79-20-9	Methyl acetate	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
108-87-2	Methylcyclohexane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
75-09-2	Methylene chloride	18.2	J, B	ug/L	5.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
104-51-8	n-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
103-65-1	n-Propylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
95-47-6	o-Xylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
179601-23-1	p- & m- Xylenes	ND		ug/L	2.50	50.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
99-87-6	p-Isopropyltoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
135-98-8	sec-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
100-42-5	Styrene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	2.50	50.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
98-06-6	tert-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
127-18-4	Tetrachloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT

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Sample Information

Client Sample ID: VC_C

York Sample ID: 22A0078-03

York Project (SDG) No.

22A0078

Client Project ID

100766601

Matrix

Water

Collection Date/Time

January 4, 2022 12:40 pm

Date Received

01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-88-3	Toluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
79-01-6	Trichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
75-69-4	Trichlorofluoromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
108-05-4	Vinyl acetate	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
75-01-4	Vinyl Chloride	311		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:08	BMT
1330-20-7	Xylenes, Total	ND		ug/L	3.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	01/11/2022 12:30	01/12/2022 02:08	BMT
Surrogate Recoveries		Result	Acceptance Range								
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	102 %	69-130								
2037-26-5	Surrogate: SURR: Toluene-d8	94.7 %	81-117								
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	99.9 %	79-122								



Sample Information

Client Sample ID: VC_T

York Sample ID: 22A0078-04

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

22A0078

100766601

Water

January 4, 2022 12:45 pm

01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
71-55-6	1,1,1-Trichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
79-00-5	1,1,2-Trichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
75-34-3	1,1-Dichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
75-35-4	1,1-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
563-58-6	1,1-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP	01/11/2022 12:30	01/12/2022 02:34	BMT
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
96-18-4	1,2,3-Trichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
106-93-4	1,2-Dibromoethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
95-50-1	1,2-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
107-06-2	1,2-Dichloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
78-87-5	1,2-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
541-73-1	1,3-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
142-28-9	1,3-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
106-46-7	1,4-Dichlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
123-91-1	1,4-Dioxane	ND		ug/L	200	500	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT

120 RESEARCH DRIVE

STRATFORD, CT 06615



132-02 89th AVENUE

RICHMOND HILL, NY 11418

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Sample Information

Client Sample ID: VC_T

York Sample ID: 22A0078-04

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

22A0078

100766601

Water

January 4, 2022 12:45 pm

01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
594-20-7	2,2-Dichloropropane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
78-93-3	2-Butanone	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
95-49-8	2-Chlorotoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
591-78-6	2-Hexanone	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
106-43-4	4-Chlorotoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
108-10-1	4-Methyl-2-pentanone	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
67-64-1	Acetone	ND		ug/L	5.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
107-02-8	Acrolein	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
107-13-1	Acrylonitrile	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
71-43-2	Benzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
108-86-1	Bromobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
74-97-5	Bromochloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
75-27-4	Bromodichloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
75-25-2	Bromoform	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
74-83-9	Bromomethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
75-15-0	Carbon disulfide	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
56-23-5	Carbon tetrachloride	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
108-90-7	Chlorobenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
75-00-3	Chloroethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
67-66-3	Chloroform	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
74-87-3	Chloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
156-59-2	cis-1,2-Dichloroethylene	155		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT

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Sample Information

Client Sample ID: VC_T

York Sample ID: 22A0078-04

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

22A0078

100766601

Water

January 4, 2022 12:45 pm

01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
110-82-7	Cyclohexane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
124-48-1	Dibromochloromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
74-95-3	Dibromomethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
75-71-8	Dichlorodifluoromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
100-41-4	Ethyl Benzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
87-68-3	Hexachlorobutadiene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
98-82-8	Isopropylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
79-20-9	Methyl acetate	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
108-87-2	Methylcyclohexane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
75-09-2	Methylene chloride	24.9	J, B	ug/L	5.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
104-51-8	n-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
103-65-1	n-Propylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
95-47-6	o-Xylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
179601-23-1	p- & m- Xylenes	ND		ug/L	2.50	50.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
99-87-6	p-Isopropyltoluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
135-98-8	sec-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
100-42-5	Styrene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/L	2.50	50.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
98-06-6	tert-Butylbenzene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
127-18-4	Tetrachloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT

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Sample Information

Client Sample ID: VC_T

York Sample ID: 22A0078-04

York Project (SDG) No.
22A0078

Client Project ID
100766601

Matrix
Water

Collection Date/Time
January 4, 2022 12:45 pm

Date Received
01/04/2022

Volatiles, 8260 Comprehensive

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-88-3	Toluene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
79-01-6	Trichloroethylene	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
75-69-4	Trichlorofluoromethane	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
108-05-4	Vinyl acetate	ND		ug/L	1.00	25.0	5	EPA 8260C Certifications: NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
75-01-4	Vinyl Chloride	261		ug/L	1.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP,PADEP	01/11/2022 12:30	01/12/2022 02:34	BMT
1330-20-7	Xylenes, Total	ND		ug/L	3.00	25.0	5	EPA 8260C Certifications: CTDOH,NELAC-NY10854,NELAC-NY12058,NJDEP	01/11/2022 12:30	01/12/2022 02:34	BMT
Surrogate Recoveries		Result	Acceptance Range								
17060-07-0	Surrogate: SURR: 1,2-Dichloroethane-d4	105 %	69-130								
2037-26-5	Surrogate: SURR: Toluene-d8	95.5 %	81-117								
460-00-4	Surrogate: SURR: p-Bromofluorobenzene	111 %	79-122								



Analytical Batch Summary

Batch ID: BA21607

Preparation Method: EPA 5030B

Prepared By: BMT

YORK Sample ID	Client Sample ID	Preparation Date
22A0078-01	TCA_C	01/11/22
22A0078-02	TCA_T	01/11/22
22A0078-03	VC_C	01/11/22
22A0078-04	VC_T	01/11/22
BA21607-BLK1	Blank	01/11/22
BA21607-BS1	LCS	01/11/22
BA21607-BSD1	LCS Dup	01/11/22



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BA21607 - EPA 5030B

Blank (BA21607-BLK1)	Blank	Prepared & Analyzed: 01/11/2022									
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L								
1,1,1-Trichloroethane	ND	0.500	"								
1,1,2,2-Tetrachloroethane	ND	0.500	"								
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.500	"								
1,1,2-Trichloroethane	ND	0.500	"								
1,1-Dichloroethane	ND	0.500	"								
1,1-Dichloroethylene	ND	0.500	"								
1,1-Dichloropropylene	ND	0.500	"								
1,2,3-Trichlorobenzene	ND	0.500	"								
1,2,3-Trichloropropane	ND	0.500	"								
1,2,4-Trichlorobenzene	ND	0.500	"								
1,2,4-Trimethylbenzene	ND	0.500	"								
1,2-Dibromo-3-chloropropane	ND	0.500	"								
1,2-Dibromoethane	ND	0.500	"								
1,2-Dichlorobenzene	ND	0.500	"								
1,2-Dichloroethane	ND	0.500	"								
1,2-Dichloropropane	ND	0.500	"								
1,3,5-Trimethylbenzene	ND	0.500	"								
1,3-Dichlorobenzene	ND	0.500	"								
1,3-Dichloropropane	ND	0.500	"								
1,4-Dichlorobenzene	ND	0.500	"								
1,4-Dioxane	ND	80.0	"								
2,2-Dichloropropane	ND	0.500	"								
2-Butanone	ND	0.500	"								
2-Chlorotoluene	ND	0.500	"								
2-Hexanone	ND	0.500	"								
4-Chlorotoluene	ND	0.500	"								
4-Methyl-2-pentanone	ND	0.500	"								
Acetone	ND	2.00	"								
Acrolein	ND	0.500	"								
Acrylonitrile	ND	0.500	"								
Benzene	ND	0.500	"								
Bromobenzene	ND	0.500	"								
Bromochloromethane	ND	0.500	"								
Bromodichloromethane	ND	0.500	"								
Bromoform	ND	0.500	"								
Bromomethane	ND	0.500	"								
Carbon disulfide	ND	0.500	"								
Carbon tetrachloride	ND	0.500	"								
Chlorobenzene	ND	0.500	"								
Chloroethane	ND	0.500	"								
Chloroform	ND	0.500	"								
Chloromethane	ND	0.500	"								
cis-1,2-Dichloroethylene	ND	0.500	"								
cis-1,3-Dichloropropylene	ND	0.500	"								
Cyclohexane	ND	0.500	"								
Dibromochloromethane	ND	0.500	"								
Dibromomethane	ND	0.500	"								
Dichlorodifluoromethane	ND	0.500	"								
Ethyl Benzene	ND	0.500	"								



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BA21607 - EPA 5030B

Blank (BA21607-BLK1)	Blank	Prepared & Analyzed: 01/11/2022									
Hexachlorobutadiene	ND	0.500	ug/L								
Isopropylbenzene	ND	0.500	"								
Methyl acetate	ND	0.500	"								
Methyl tert-butyl ether (MTBE)	ND	0.500	"								
Methylcyclohexane	ND	0.500	"								
Methylene chloride	9.77	2.00	"								
n-Butylbenzene	ND	0.500	"								
n-Propylbenzene	ND	0.500	"								
o-Xylene	ND	0.500	"								
p- & m- Xylenes	ND	1.00	"								
p-Isopropyltoluene	ND	0.500	"								
sec-Butylbenzene	ND	0.500	"								
Styrene	ND	0.500	"								
tert-Butyl alcohol (TBA)	ND	1.00	"								
tert-Butylbenzene	ND	0.500	"								
Tetrachloroethylene	ND	0.500	"								
Toluene	ND	0.500	"								
trans-1,2-Dichloroethylene	ND	0.500	"								
trans-1,3-Dichloropropylene	ND	0.500	"								
Trichloroethylene	ND	0.500	"								
Trichlorofluoromethane	ND	0.500	"								
Vinyl acetate	ND	0.500	"								
Vinyl Chloride	ND	0.500	"								
Xylenes, Total	ND	1.50	"								
Surrogate: SURR: 1,2-Dichloroethane-d4	49.1		"	50.0		98.2	69-130				
Surrogate: SURR: Toluene-d8	47.4		"	50.0		94.9	81-117				
Surrogate: SURR: p-Bromofluorobenzene	49.2		"	50.0		98.4	79-122				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BA21607 - EPA 5030B											
LCS (BA21607-BS1)	LCS		Prepared & Analyzed: 01/11/2022								
1,1,1,2-Tetrachloroethane	55.8		ug/L	50.0		112	82-126				
1,1,1-Trichloroethane	58.0		"	50.0		116	78-136				
1,1,2,2-Tetrachloroethane	52.8		"	50.0		106	76-129				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	54.4		"	50.0		109	54-165				
1,1,2-Trichloroethane	54.3		"	50.0		109	82-123				
1,1-Dichloroethane	57.1		"	50.0		114	82-129				
1,1-Dichloroethylene	59.0		"	50.0		118	68-138				
1,1-Dichloropropylene	55.8		"	50.0		112	83-133				
1,2,3-Trichlorobenzene	49.4		"	50.0		98.7	76-136				
1,2,3-Trichloropropane	54.1		"	50.0		108	77-128				
1,2,4-Trichlorobenzene	49.3		"	50.0		98.6	76-137				
1,2,4-Trimethylbenzene	53.0		"	50.0		106	82-132				
1,2-Dibromo-3-chloropropane	49.5		"	50.0		98.9	45-147				
1,2-Dibromoethane	55.8		"	50.0		112	83-124				
1,2-Dichlorobenzene	50.9		"	50.0		102	79-123				
1,2-Dichloroethane	59.6		"	50.0		119	73-132				
1,2-Dichloropropane	56.1		"	50.0		112	78-126				
1,3,5-Trimethylbenzene	52.8		"	50.0		106	80-131				
1,3-Dichlorobenzene	50.7		"	50.0		101	86-122				
1,3-Dichloropropane	55.3		"	50.0		111	81-125				
1,4-Dichlorobenzene	50.8		"	50.0		102	85-124				
1,4-Dioxane	1810		"	1050		172	10-349				
2,2-Dichloropropane	57.4		"	50.0		115	56-150				
2-Butanone	57.5		"	50.0		115	49-152				
2-Chlorotoluene	52.5		"	50.0		105	79-130				
2-Hexanone	52.2		"	50.0		104	51-146				
4-Chlorotoluene	53.7		"	50.0		107	79-128				
4-Methyl-2-pentanone	55.7		"	50.0		111	57-145				
Acetone	38.8		"	50.0		77.6	14-150				
Acrolein	70.4		"	50.0		141	10-153				
Acrylonitrile	58.9		"	50.0		118	51-150				
Benzene	59.2		"	50.0		118	85-126				
Bromobenzene	51.2		"	50.0		102	78-129				
Bromochloromethane	58.3		"	50.0		117	77-128				
Bromodichloromethane	55.9		"	50.0		112	79-128				
Bromoform	51.4		"	50.0		103	78-133				
Bromomethane	52.7		"	50.0		105	43-168				
Carbon disulfide	66.6		"	50.0		133	68-146				
Carbon tetrachloride	59.7		"	50.0		119	77-141				
Chlorobenzene	56.8		"	50.0		114	88-120				
Chloroethane	52.7		"	50.0		105	65-136				
Chloroform	58.6		"	50.0		117	82-128				
Chloromethane	50.6		"	50.0		101	43-155				
cis-1,2-Dichloroethylene	57.9		"	50.0		116	83-129				
cis-1,3-Dichloropropylene	53.2		"	50.0		106	80-131				
Cyclohexane	50.0		"	50.0		100	63-149				
Dibromochloromethane	51.2		"	50.0		102	80-130				
Dibromomethane	54.7		"	50.0		109	72-134				
Dichlorodifluoromethane	44.1		"	50.0		88.3	44-144				
Ethyl Benzene	57.2		"	50.0		114	80-131				
Hexachlorobutadiene	49.0		"	50.0		97.9	67-146				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BA21607 - EPA 5030B

LCS (BA21607-BS1)	LCS	Prepared & Analyzed: 01/11/2022									
Isopropylbenzene	54.8	ug/L	50.0	110	76-140						
Methyl acetate	49.6	"	50.0	99.1	51-139						
Methyl tert-butyl ether (MTBE)	56.1	"	50.0	112	76-135						
Methylcyclohexane	48.0	"	50.0	96.0	72-143						
Methylene chloride	61.6	"	50.0	123	55-137						
n-Butylbenzene	50.6	"	50.0	101	79-132						
n-Propylbenzene	53.4	"	50.0	107	78-133						
o-Xylene	59.3	"	50.0	119	78-130						
p- & m- Xylenes	108	"	100	108	77-133						
p-Isopropyltoluene	52.9	"	50.0	106	81-136						
sec-Butylbenzene	53.4	"	50.0	107	79-137						
Styrene	57.0	"	50.0	114	67-132						
tert-Butyl alcohol (TBA)	288	"	250	115	25-162						
tert-Butylbenzene	54.0	"	50.0	108	77-138						
Tetrachloroethylene	46.6	"	50.0	93.2	82-131						
Toluene	55.3	"	50.0	111	80-127						
trans-1,2-Dichloroethylene	59.0	"	50.0	118	80-132						
trans-1,3-Dichloropropylene	51.7	"	50.0	103	78-131						
Trichloroethylene	55.0	"	50.0	110	82-128						
Trichlorofluoromethane	54.2	"	50.0	108	67-139						
Vinyl acetate	50.2	"	50.0	100	21-90	High Bias					
Vinyl Chloride	51.3	"	50.0	103	58-145						
Surrogate: SURR: 1,2-Dichloroethane-d4	49.5	"	50.0	99.0	69-130						
Surrogate: SURR: Toluene-d8	47.8	"	50.0	95.5	81-117						
Surrogate: SURR: p-Bromofluorobenzene	49.2	"	50.0	98.5	79-122						

LCS Dup (BA21607-BSD1)	LCS Dup	Prepared & Analyzed: 01/11/2022									
1,1,1,2-Tetrachloroethane	55.6	ug/L	50.0	111	82-126	0.233	30				
1,1,1-Trichloroethane	57.6	"	50.0	115	78-136	0.778	30				
1,1,2,2-Tetrachloroethane	53.2	"	50.0	106	76-129	0.641	30				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	54.0	"	50.0	108	54-165	0.628	30				
1,1,2-Trichloroethane	53.5	"	50.0	107	82-123	1.56	30				
1,1-Dichloroethane	56.8	"	50.0	114	82-129	0.509	30				
1,1-Dichloroethylene	58.0	"	50.0	116	68-138	1.71	30				
1,1-Dichloropropylene	55.4	"	50.0	111	83-133	0.755	30				
1,2,3-Trichlorobenzene	49.0	"	50.0	98.1	76-136	0.651	30				
1,2,3-Trichloropropane	53.1	"	50.0	106	77-128	1.77	30				
1,2,4-Trichlorobenzene	48.6	"	50.0	97.2	76-137	1.41	30				
1,2,4-Trimethylbenzene	53.3	"	50.0	107	82-132	0.508	30				
1,2-Dibromo-3-chloropropane	48.1	"	50.0	96.1	45-147	2.87	30				
1,2-Dibromoethane	54.5	"	50.0	109	83-124	2.34	30				
1,2-Dichlorobenzene	50.6	"	50.0	101	79-123	0.512	30				
1,2-Dichloroethane	57.1	"	50.0	114	73-132	4.20	30				
1,2-Dichloropropane	55.3	"	50.0	111	78-126	1.44	30				
1,3,5-Trimethylbenzene	52.8	"	50.0	106	80-131	0.0758	30				
1,3-Dichlorobenzene	50.5	"	50.0	101	86-122	0.415	30				
1,3-Dichloropropane	53.8	"	50.0	108	81-125	2.64	30				
1,4-Dichlorobenzene	50.4	"	50.0	101	85-124	0.751	30				
1,4-Dioxane	1810	"	1050	173	10-349	0.394	30				
2,2-Dichloropropane	57.4	"	50.0	115	56-150	0.105	30				
2-Butanone	52.2	"	50.0	104	49-152	9.65	30				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BA21607 - EPA 5030B											
LCS Dup (BA21607-BSD1)	LCS Dup		Prepared & Analyzed: 01/11/2022								
2-Chlorotoluene	52.4		ug/L	50.0		105	79-130		0.267	30	
2-Hexanone	50.5		"	50.0		101	51-146		3.27	30	
4-Chlorotoluene	53.2		"	50.0		106	79-128		0.880	30	
4-Methyl-2-pentanone	54.1		"	50.0		108	57-145		2.88	30	
Acetone	38.1		"	50.0		76.1	14-150		1.93	30	
Acrolein	65.6		"	50.0		131	10-153		7.00	30	
Acrylonitrile	56.3		"	50.0		113	51-150		4.43	30	
Benzene	58.6		"	50.0		117	85-126		1.07	30	
Bromobenzene	50.9		"	50.0		102	78-129		0.431	30	
Bromochloromethane	56.6		"	50.0		113	77-128		2.84	30	
Bromodichloromethane	54.8		"	50.0		110	79-128		2.08	30	
Bromoform	50.4		"	50.0		101	78-133		1.89	30	
Bromomethane	52.6		"	50.0		105	43-168		0.304	30	
Carbon disulfide	65.9		"	50.0		132	68-146		1.01	30	
Carbon tetrachloride	59.4		"	50.0		119	77-141		0.420	30	
Chlorobenzene	56.2		"	50.0		112	88-120		0.974	30	
Chloroethane	52.3		"	50.0		105	65-136		0.686	30	
Chloroform	57.4		"	50.0		115	82-128		2.03	30	
Chloromethane	49.7		"	50.0		99.5	43-155		1.73	30	
cis-1,2-Dichloroethylene	57.0		"	50.0		114	83-129		1.62	30	
cis-1,3-Dichloropropylene	52.4		"	50.0		105	80-131		1.53	30	
Cyclohexane	49.8		"	50.0		99.7	63-149		0.361	30	
Dibromochloromethane	50.7		"	50.0		101	80-130		1.12	30	
Dibromomethane	53.4		"	50.0		107	72-134		2.54	30	
Dichlorodifluoromethane	43.1		"	50.0		86.3	44-144		2.29	30	
Ethyl Benzene	56.5		"	50.0		113	80-131		1.07	30	
Hexachlorobutadiene	49.3		"	50.0		98.5	67-146		0.631	30	
Isopropylbenzene	55.1		"	50.0		110	76-140		0.619	30	
Methyl acetate	47.7		"	50.0		95.5	51-139		3.72	30	
Methyl tert-butyl ether (MTBE)	54.9		"	50.0		110	76-135		2.20	30	
Methylcyclohexane	47.5		"	50.0		95.0	72-143		1.01	30	
Methylene chloride	59.8		"	50.0		120	55-137		3.00	30	
n-Butylbenzene	50.7		"	50.0		101	79-132		0.217	30	
n-Propylbenzene	53.4		"	50.0		107	78-133		0.0187	30	
o-Xylene	58.8		"	50.0		118	78-130		0.813	30	
p- & m- Xylenes	107		"	100		107	77-133		0.901	30	
p-Isopropyltoluene	53.2		"	50.0		106	81-136		0.471	30	
sec-Butylbenzene	53.5		"	50.0		107	79-137		0.168	30	
Styrene	56.1		"	50.0		112	67-132		1.56	30	
tert-Butyl alcohol (TBA)	285		"	250		114	25-162		0.831	30	
tert-Butylbenzene	54.0		"	50.0		108	77-138		0.0741	30	
Tetrachloroethylene	45.8		"	50.0		91.6	82-131		1.69	30	
Toluene	54.9		"	50.0		110	80-127		0.798	30	
trans-1,2-Dichloroethylene	58.4		"	50.0		117	80-132		1.02	30	
trans-1,3-Dichloropropylene	50.7		"	50.0		101	78-131		2.07	30	
Trichloroethylene	54.6		"	50.0		109	82-128		0.693	30	
Trichlorofluoromethane	53.5		"	50.0		107	67-139		1.17	30	
Vinyl acetate	49.5		"	50.0		99.0	21-90	High Bias	1.44	30	
Vinyl Chloride	50.5		"	50.0		101	58-145		1.51	30	
Surrogate: SURR: 1,2-Dichloroethane-d4	49.0		"	50.0		98.1	69-130				
Surrogate: SURR: Toluene-d8	48.1		"	50.0		96.1	81-117				



Volatile Organic Compounds by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag

Batch BA21607 - EPA 5030B

LCS Dup (BA21607-BSD1) LCS Dup

Prepared & Analyzed: 01/11/2022

Surrogate: SURR: p-Bromofluorobenzene	49.6		ug/L	50.0		99.3	79-122				



Volatile Analysis Sample Containers

Lab ID	Client Sample ID	Volatile Sample Container
22A0078-01	TCA_C	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C
22A0078-02	TCA_T	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C
22A0078-03	VC_C	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C
22A0078-04	VC_T	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C



Sample and Data Qualifiers Relating to This Work Order

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QL-02	This LCS analyte is outside Laboratory Recovery limits due the analyte behavior using the referenced method. The reference method has certain limitations with respect to analytes of this nature.
J	Detected below the Reporting Limit but greater than or equal to the Method Detection Limit (MDL/LOD) or in the case of a TIC, the result is an estimated concentration.
B	Analyte is found in the associated analysis batch blank. For volatiles, methylene chloride and acetone are common lab contaminants.

Definitions and Other Explanations

*	Analyte is not certified or the state of the samples origination does not offer certification for the Analyte.
ND	NOT DETECTED - the analyte is not detected at the Reported to level (LOQ/RL or LOD/MDL)
RL	REPORTING LIMIT - the minimum reportable value based upon the lowest point in the analyte calibration curve.
LOQ	LIMIT OF QUANTITATION - the minimum concentration of a target analyte that can be reported within a specified degree of confidence. This is the lowest point in an analyte calibration curve that has been subjected to all steps of the processing/analysis and verified to meet defined criteria. This is based upon NELAC 2009 Standards and applies to all analyses.
LOD	LIMIT OF DETECTION - a verified estimate of the minimum concentration of a substance in a given matrix that an analytical process can reliably detect. This is based upon NELAC 2009 Standards and applies to all analyses conducted under the auspices of EPA SW-846.
MDL	METHOD DETECTION LIMIT - a statistically derived estimate of the minimum amount of a substance an analytical system can reliably detect with a 99% confidence that the concentration of the substance is greater than zero. This is based upon 40 CFR Part 136 Appendix B and applies only to EPA 600 and 200 series methods.
Reported to	This indicates that the data for a particular analysis is reported to either the LOD/MDL, or the LOQ/RL. In cases where the "Reported to" is located above the LOD/MDL, any value between this and the LOQ represents an estimated value which is "J" flagged accordingly. This applies to volatile and semi-volatile target compounds only.
NR	Not reported
RPD	Relative Percent Difference
Wet	The data has been reported on an as-received (wet weight) basis
Low Bias	Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit. The data user should take note that this analyte may be biased low but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
High Bias	High Bias flag indicates that the recovery of the flagged analyte is above the laboratory or regulatory upper control limit. The data user should take note that this analyte may be biased high but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
Non-Dir.	Non-dir. flag (Non-Directional Bias) indicates that the Relative Percent Difference (RPD) (a measure of precision) among the MS and MSD data is outside the laboratory or regulatory control limit. This alerts the data user where the MS and MSD are from site-specific samples that the RPD is high due to either non-homogeneous distribution of target analyte between the MS/MSD or indicates poor reproducibility for other reasons.

If EPA SW-846 method 8270 is included herein it is noted that the target compound N-nitrosodiphenylamine (NDPA) decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine (DPA). These results could actually represent 100% DPA, 100% NDPA or some combination of the two. For this reason, York reports the combined result for n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration as Diphenylamine.

If Total PCBs are detected and the target aroclors reported are "Not detected", the Total PCB value is reported due to the presence of either or both Aroclors 1262 and 1268 which are non-target aroclors for some regulatory lists.

2-chloroethylvinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

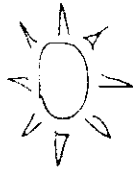
Certification for pH is no longer offered by NYDOH ELAP.



Semi-Volatile and Volatile analyses are reported down to the LOD/MDL, with values between the LOD/MDL and the LOQ being "J" flagged as estimated results.

For analyses by EPA SW-846-8270D, the Limit of Quantitation (LOQ) reported for benzidine is based upon the lowest standard used for calibration and is not a verified LOQ due to this compound's propensity for oxidative losses during extraction/concentration procedures and non-reproducible chromatographic performance.

Revision Description: This report has been revised to correct results due to lab error in applying a secondary dilution factor.



YORK
ANALYTICAL LABORATORIES INC

Field Chain-of-Custody Record

York Analytical Laboratories, Inc. (YORK)'s Standard Terms & Conditions are listed on the back side of this document. This document serves as your written authorization for YORK to proceed with the analyses requested below. Your signature binds you to YORK's Standard Terms & Conditions.

120 Research Drive Stratford, CT 06615

132-02 89th Ave Queens, NY 11418

clientservices@yorklab.com

www.yorklab.com

800-306-YORK

Page

of

YORK Project No.

22A0078

YOUR Information		Report To:		Invoice To:		YOUR Project Number		Turn-Around Time	
Company	Langan	Company	Areona Boadram	Company	Areona Boadram	160766601		RUSH - Next Day	
Address	309 Lumball Dr Parsippany, NJ	Address	same	Address				RUSH - Two Day	
Phone		Phone		Phone				RUSH - Three Day	
Contact		Contact	Areona Boadram	Contact	Areona Boadram			RUSH - Four Day	
E-mail		E-mail	aboadram@langan.com	E-mail				Standard (5-7 Day)	

Report / EDD Type (circle selections)		YORK Reg. Comp.	
Summary Report	CT RCP	Compared to the following Regulation(s): (please fill in)	
QA Report	CT RCP DQ/DUE	Standard	
NY ASP A Package	NJDEP Reduced Deliverables	NYSDEC EQUIS	
NY ASP B Package	NJDKQP	NJDEP SRP HazSite	
Other:			

Matrix Codes		Samples From		Analysis Requested		Container Description	
S - soil / solid	New York	Date/Time Sampled	VOCs			3 glass vials	
GW - groundwater	New Jersey	Jan 4, 2022 12:30	VOCs			-1-	
DW - drinking water	Connecticut	Jan 4, 2022 12:35	VOCs			-1-	
WW - wastewater	Pennsylvania	Jan 4, 2022 12:40	VOCs			-1-	
O - Oil	Other:	Jan 4, 2022 12:45	VOCs			-1-	
Sample Matrix		Water	VOCs				
Sample Identification							
TCA-C							
TCA-T							
VC-C							
VC-T							
Lab Water							

Comments: Contain emulsified vegetable oil and zero valent iron - only in 'r' samples		Preservation: (check all that apply)		Special Instruction	
		HCl MeOH HNO3 H2SO4 NaOH		Field Filtered	
		ZnAc Ascorbic Acid Other:		Lab to Filter	

1. Samples Relinquished by / Company		2. Samples Relinquished by / Company		3. Samples Relinquished by / Company		4. Samples Relinquished by / Company	
Langan A-Okla. Jan 4, 2022		Andrew S. York 1/4/22 14:12		Andrew S. York 1/4/22 1730		Andrew S. York 1/4/22 1730	
Francisco York 1/4/22 1730		Francisco York 1/4/22 1912		Francisco York 1/4/22 1912		Francisco York 1/4/22 1912	
Date/Time		Date/Time		Date/Time		Date/Time	
120 Research Drive Stratford, CT 06615		132-02 89th Ave Queens, NY 11418		clientservices@yorklab.com		www.yorklab.com	
800-306-YORK		800-306-YORK		800-306-YORK		800-306-YORK	
Page		Page		Page		Page	
of		of		of		of	

APPENDIX D

Construction Health and Safety Plan

CONSTRUCTION HEALTH AND SAFETY PLAN

for

23-30 BORDEN AVENUE DEVELOPMENT

**23-30 Borden Avenue
Long Island City, New York**

NYSDEC BCP Site No. C241238

Prepared For:

23-30 Borden Owner LLC

c/o Innovo Property Group

1370 Avenue of the Americas, 19th Floor

New York, New York 10019

Prepared By:

**Langan Engineering, Environmental, Surveying,
Landscape Architecture and Geology, D.P.C.**

300 Kimball Drive

Parsippany, New Jersey 07054

July 2021

Revised March 2022

100766601

LANGAN

ENVIRONMENTAL HEALTH AND SAFETY PLAN

Client: **23-30 Borden Owner LLC**

Project: **Construction Oversight During Remediation**

Location: **23-30 Borden Avenue, Long Island City, New York**

Chemical Hazards: **Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), Pesticides, Polychlorinated Biphenyls (PCBs), Metals, Per- and polyfluoroalkyl substances (PFAS), Non-Aqueous Phase Liquid (NAPL)**

Prepared By: **Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.**

Version: **1**

Date: **May 2021**

Client Contact: **Stephen Kim (212) 218-3158**

Langan Project Manager (PM): **Amanda Forsburg (973) 560-4574**

Langan Health & Safety Manager (HSM): **Tony Moffa, CHMM (215) 491-6545**

Langan Health and Safety Officer (HSO): **Field Personnel**

WorkCare: **1-888-449-7787**

Langan Incident/Injury Hotline: **(973) 560-4699**

LANGAN ENGINEERING, ENVIRONMENTAL, SURVEYING, LANDSCAPE ARCHITECTURE AND GEOLOGY, D.P.C. (LANGAN), AND LANGAN SUBCONTRACTORS, DO NOT GUARANTEE THE HEALTH OR SAFETY OF ANY PERSON ENTERING THIS SITE. DUE TO THE NATURE OF THIS SITE AND THE ACTIVITY OCCURRING THEREON, IT IS NOT POSSIBLE TO DISCOVER, EVALUATE, AND PROVIDE PROTECTION FOR ALL POSSIBLE HAZARDS WHICH MAY BE ENCOUNTERED. STRICT ADHERENCE TO THE HEALTH AND SAFETY GUIDELINES SET FORTH HEREIN WILL REDUCE, BUT NOT ELIMINATE, THE POTENTIAL FOR INJURY AT THIS SITE. THE HEALTH AND SAFETY GUIDELINES IN THIS PLAN WERE PREPARED SPECIFICALLY FOR THIS SITE AND SHOULD NOT BE USED ON ANY OTHER SITE WITHOUT PRIOR RESEARCH AND EVALUATION BY A TRAINED HEALTH AND SAFETY SPECIALIST.

APPROVALS

By signature, the personnel identified below hereby acknowledge that they have reviewed this Construction Health and Safety Plan (CHASP) and agree to comply with the requirements contained therein as well as the applicable provisions of 29 CFR Parts 1910 and 1926. The undersigned also acknowledge and accept that this CHASP is the project CHASP for the site work described in the Remedial Action Plan (RAP). Furthermore, in reviewing and accepting this CHASP, as currently written, the undersigned agree that to the best of their knowledge, this CHASP adequately identifies the activities and hazards associated with work at this site and describes the appropriate and necessary precautions and protections for site workers required by the applicable OSHA statutes and regulations.



LANGAN Project Manager - PM (Amanda Forsburg)

3/15/2022
Date

LANGAN Health and Safety Manager (Tony Moffa, CHMM)

Date

LANGAN Health and Safety Officer – HSO

Date

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Attachment C	Unsafe Conditions and Practices Form
Attachment D	Calibration Log
Attachment E	Emergency Notification Numbers
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1.0 INTRODUCTION

1.1 Purpose and Policy

This Construction Health and Safety Plan (CHASP) has been developed to comply with the regulations under Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120(b)(4), Hazardous Waste Operations and Emergency Response. It addresses foreseeable activities associated with the site work activities to be conducted at the 23-30 Borden Avenue, site located to the south of the intersection of Borden Avenue and 23rd Street in Long Island City, New York (see Figure 1). This CHASP establishes personnel protection standards and mandatory safety practices and procedures. Additionally, it assigns responsibilities, establishes standard operating procedures, and provides for contingencies that may arise while operations are being conducted at known or suspected hazardous waste sites.

Langan personnel involved with inspection of site work activities which involve the displacement of soil, groundwater, and/or material during the proposed development, and emulsified zero-valent iron (EZVI) injections shall comply with the requirements of this CHASP. All Langan personnel engaged in onsite activities will read this document carefully and complete the Safety Briefing Form (Attachment A), a copy of which will be provided to Langan's Project files. Contractors and subcontractors conducting construction-related activities which will disturb or displace soil in the identified AOC and/or perform EZVI injections are required to develop and follow their own HASP which must be equal or more stringent than the Langan CHASP. Contractors and subcontractors are responsible for their own workers Health and Safety and providing a safe working environment in accordance with all applicable federal, state and local requirements. Each Subcontractor will have a designated Site Health and Safety Manager who will be responsible for ensuring that the designated procedures are implemented in the field. Personnel who have any questions or concerns regarding implementation of this plan are encouraged to request clarification from the Langan Project Manager. Field personnel must follow the designated health and safety procedures, be alert to the hazards associated with working close to vehicles and equipment, and use common sense and exercise reasonable caution at all times.

This CHASP covers construction related field activities which have the potential to disturb and/or displace historic fill material or groundwater impacted with VOCs, SVOCs, pesticides, PCBs, metals, PFAS, and/or NAPL as identified in the 23-30 Borden Avenue Remedial Investigation Report (RIR). Additionally, this CHASP covers EZVI injection related field activities, as described in the 23-30 Borden Avenue EZVI Remedial Design (RD).

This CHASP was prepared in accordance with the following documents and/or guidelines:

- Occupational Safety and Health Administration (OSHA) regulations for hazardous site workers (29 CFR 1910.120 and 29 CFR 1926); and,
- NIOSH/OSHA/USCG/EPA *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*.

Langan's Health and Safety Program and Safe Operating Procedures support this site-specific CHASP.

The level of protection and the procedures specified in this CHASP represent the minimum health and safety requirements to be observed by site personnel engaged in the referenced inspection of construction related activities. Unknown conditions may exist, and known conditions may change. Should an employee find himself or herself in a potentially hazardous situation, the employee will immediately discontinue the hazardous procedures(s) and either personally effect appropriate preventative or corrective measures, or immediately notify the Health and Safety Officer or the Langan Project Manager of the nature of the hazard. In the event of an immediately dangerous or life threatening situation, the employee always has "stop work" authority. Any necessary revision to the Health and Safety procedures will be recorded in the Field Procedure Change Authorization Form (Attachment B), and will require authorization from the Langan Health and Safety Officer and Project Manager.

THE ULTIMATE RESPONSIBILITY FOR THE HEALTH AND SAFETY OF THE INDIVIDUAL EMPLOYEE RESTS WITH THE EMPLOYEE AND HIS OR HER COLLEAGUES. Each employee is responsible for exercising the utmost care and good judgment in protecting his or her own health and safety and that of fellow employees. Should any employee observe a potentially unsafe condition or situation, it is the responsibility of that employee to immediately bring the

observed condition to the attention of the appropriate health and safety personnel as designated above and to follow-up the verbal notification by completing the Unsafe Conditions and Practices Form provided in Attachment C, a copy of which will be provided to the Langan Health and Safety Officer.

"Extenuating" circumstances such as budget or time constraints, equipment breakdown, changing or unexpected conditions, never justify unsafe work practices or procedures. In fact, the opposite is true. Under stressful circumstances all project personnel must be mindful of the potential to consciously or unconsciously compromise health and safety standards, and be especially safety conscious. **ALL SITE PERSONNEL ARE EXPECTED TO CONSIDER "SAFETY FIRST" AT ALL TIMES.**

1.2 Site Descriptions

The Site is located in the Long Island City neighborhood of Queens, New York and is identified as Block 68 Lot 38. The Site is an approximately 203,325-square-foot parcel and contains the concrete slab of a former 181,675-square-foot two-story warehouse. The Site is bound to the north by Borden Avenue, followed by a series of one- and two-story industrial and manufacturing properties, to the east by a one-story industrial/manufacturing property, to the south by rail lines and a switchyard associated with the Montauk Line of the Long Island Rail Road (LIRR), and to the west by a two-story industrial/manufacturing building. The Long Island Expressway/Queens Midtown Expressway and the Newtown Creek are in proximity to the north and to the south of the site, respectively.

Based on observations of NAPL during the 2019 Phase II Environmental Investigation, NYSDEC was notified of a release and Spill No. 1812799 was assigned on 29 March 2019.

1.3 Scope of Work

The site work activities which will require the oversight by Langan personnel include the following tasks:

- Task 1 - Excavation and off-site disposal of soil/fill generated during Site remediation and construction of the proposed building foundation;
- Task 2 – Installation of recovery wells and periodic NAPL/product recovery and disposal via a vacuum truck within the heavy distillate impacts area (AOC-4).

- Task 3 – Installation of approximately 48 temporary direct push injection points (16 within the vinyl chloride plume and 32 within the 1,1,1-trichloroethane plume) for groundwater remediation;
- Task 4 - Installation of 17 permanent monitoring wells (5 within the vinyl chloride plume and 12 within the 1,1,1-trichloroethane plume) and collection of groundwater samples to evaluate injection/remediation performance;
- Task 5 - Collection of documentation soil samples;
- Task 6 - Installation of a SSDS below the building slab, consisting of horizontal solid and perforated piping, a gravel collection layer, and a vapor barrier membrane seal; and,
- Task 7 - Construction of a temporary Site-wide cover system consisting of a minimum of six-inches approved imported material and/or previously approved crushed concrete.

Details of the scopes of work to be completed in each of the work areas for this project are provided within the 23-30 Borden Avenue Remedial Action Work Plan (RAWP).

During construction, all soil/fill excavated or disturbed at the site will be either transported off site for disposal at an approved facility or reused on-site pending NYSDEC approval. Personnel conducting activities that will contact the impacted soil/fill, petroleum impacted material associated with NYSDEC Spill No. 1812799, petroleum impacted water generated during NAPL/product recovery activities, VOC-impacted water during injections or groundwater sampling, or other impacted materials shall abide to the provisions of this CHASP.

2.0 PROJECT TEAM ORGANIZATION AND RESPONSIBILITIES

This section specifies the Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. (Langan) Project Organization.

2.1 Langan Project Manager

The Langan Project Manager (PM) is Amanda Forsburg. The PM responsibilities include:

Responsibilities:

- Prepares and organizes the background review of site conditions, the site HASP, and the field team.
- Obtains permission for site access and coordinates activities with appropriate officials.
- Briefs the field team on their specific assignments.
- Coordinates with the Health and Safety Officer (HSO) to ensure that health and safety requirements are met.
- Serves as the liaison with public officials.
- Ensures that this HASP is developed and approved prior to on-site activities.
- Ensures that all the tasks in the project are performed in a manner consistent with Langan's comprehensive Health and Safety Program for Hazardous Waste Operations and this HASP.

2.2 Health and Safety Manager (HSM)

The Langan Corporate Health and Safety Manager (HSM) is Tony Moffa. His responsibilities include:

- Serving as a resource in the development and implementation of HASPs;
- Assisting in reviewing results of Jobsite Safety Inspections;
- Assisting site Health and Safety Officer (HSO) with development of the HASP, updating HASP as dictated by changing conditions, jobsite inspection results, etc.;
- Maintaining all records on personnel (medical evaluation results, training and certifications, accident investigation results, etc.).

2.3 Health and Safety Officer (HSO)

The Langan Health and Safety Officer (HSO) will be identified prior to the start of field work. The HSO responsibilities include:

- Participating in the development and implementation of this HASP;
- Conducting Jobsite Safety Inspections (Attachment H) and correcting any shortcomings in a timely manner;
- Helping to select proper PPE (Personal Protective Equipment) and periodically inspecting it;
- Ensuring that PPE is properly stored and maintained;
- Controlling entry into and exit from the contaminated areas or zones of the site;
- Confirming each team member's suitability for work based on a current physician's recommendation;
- Monitoring the work parties for signs of stress, such as heat stress, fatigue, and cold exposure;
- Monitoring site hazards and conditions;
- Knowing (and ensuring that all site personnel also know) emergency procedures, evacuation routes, and the telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department;
- Resolving conflicting situations which may arise concerning safety requirements and working conditions.
- Conducting daily tailgate meetings to review applicable JSAs as well as check-in with site personnel.

3.0 HAZARDS ANALYSIS

This section presents all assessment of the general, chemical, physical and biological hazards that may be encountered during the tasks specified under this CHASP (Section 1.3). A detail on types of potential contaminants of concerns Langan anticipates to encounter at different locations during the intrusive redevelopment and associated remediation is listed in Tables 1 and 2 of this CHASP.

3.1 General Hazard Assessment

A general hazard assessment was conducted for the required field work described in Section 1.3 and the following potential hazards have been identified:

- Inhalation of volatile contaminants;
- Skin and eye contact with contaminants;
- Ingestion of contaminants;
- Inhalation of dusts impacted with VOCs, SVOCs, pesticides, PCBs, PFAS, and/or metals;
- Physical hazards associated with the use of heavy equipment;
- Excavation hazards;
- Tripping hazards;
- Injection reagent handling hazards;
- Noise exposure;
- Heat stress (depending on weather conditions);
- Cold exposure (depending on weather conditions);
- Flammable hazards;
- Electrical hazards; and,
- Use of personal protective equipment.

These hazards are further described in the task-by-task hazard analysis in Table 3. Specific chemical, physical and biological hazards are discussed below.

Mitigation and controls will include as needed work procedures, work/rest regiment, dust control measures, personal protective equipment, and respiratory protection as appropriate.

3.2 Chemical Exposure Hazards

The following chemical hazard evaluation for the proposed site development activities is based on the previous environmental investigations at the site. The evaluation has been conducted to identify chemicals/materials that potentially may be present at the site, and to ensure that work activities, personnel protection, and emergency response are consistent with the specific contaminants that potentially could be encountered.

3.2.1 Specific Chemical Hazards Previously Detected at the Site

Contaminants identified during the investigations completed for the site that may be encountered while conducting site excavation and foundation construction activities include:

- VOCs, SVOCs, pesticides, PCBs, PFAS, and metals commonly associated with historic urban fill and petroleum impacts.
- VOCs, SVOCs, and NAPL associated with petroleum impacts from Spill No. 1812799, the heavy petroleum distillate impacts area, and historical site use.
- Chlorinated VOCs in groundwater (specifically vinyl chloride and 1,1,1-trichloroethane) at concentration above NYSDEC SGVs.
- Chlorinated VOCs soil vapor at concentrations above the NYSDOH guidance criteria that would require additional mitigation actions.
- Petroleum-related VOCs in soil vapor.
- Some dewatering is anticipated during foundation construction. VOCs, SVOCs, metals, and PFAS compounds may be encountered during dewatering activities.

Areas of Concern (AOCs) and hot spot locations and associated impacts are shown on Figure 2. Table 1 lists Contaminants of Concern and potentially affected media. The potential contaminants that might be encountered during the field activities and the exposure limits are listed in Table 2.

3.2.2 EZVI Injection Reagent Hazards

EZVI injection reagents include SRS[®]-SD¹ small droplet emulsified vegetable oil, zero valent iron (ZVI), SDC-9[™] (bioaugmentation culture)², and NutriPlus[™] (nutrients)³. Safety data sheets (SDSs) for each reagent are provided in Attachment G.

¹ Produced by TerraSystems, Inc., Wilmington, DE

² Produced by Aptim, Inc., Lawrenceville, NJ

³ Produced by TerraSystems, Inc., Wilmington, DE

3.2.3 Chemical Hazard Exposure Routes

Potential hazards and their exposure routes include:

- Inhalation of organic vapors due to the presence of volatile organic compounds from diesel-powered equipment.
- Inadvertent ingestion of potentially toxic substances via hand to mouth contact or deliberate ingestion of materials inadvertently contaminated with potentially toxic materials such as SVOCs, pesticides, PCBs, metals, or EZVI injection reagents.
- Skin and eye contact with contaminants or EZVI injection reagents at the site and decontamination activities.

Exposure limits and health effects of selected chemicals are in Table 2. The probability of exposure for each task is outlined in Table 3.

3.2.4 Control of Exposure to Chemical Hazards

To protect potentially exposed personnel the following procedures and protocols will be adopted and used as needed: work procedures will be adhered to, work zones will be established, dust control will be utilized, respirators (if required) and personal protective equipment will be worn, area air monitoring will be conducted during times of disturbance of the impacted fill material and strict personnel decontamination procedures will be followed.

3.3 Physical Hazards

3.3.1 Temperature Extremes

Hot Temperatures

Heat stress is a significant potential hazard, which is greatly exacerbated with the use of PPE, in hot environments. The potential hazards of working in hot environments include dehydration, cramps, heat rash, heat exhaustion, and heat stroke. If onsite workers exhibit the signs of heat exhaustion or heat stroke, they should seek immediate medical attention.

Cold Temperatures

Workers may be exposed to the hazard of working in a cold environment. Potential hazards in cold environments include frostbite, trench foot or immersion foot, hypothermia, as well as slippery surfaces, brittle equipment, poor judgment, and unauthorized procedural changes. In order to prevent frostbite, hypothermia, trench foot and immersion foot, the workers are responsible for dressing warmly in layers with thick socks, gloves, and appropriate head and face gear. Upon the onset of discomfort due to the cold, onsite workers should take regular five to ten minute breaks to warm up inside nearby buildings and to drink warm fluids. Please note that the NYCDEP statute prohibits idling an engine for more than three minutes (one-minute if adjacent to a school). This statute includes the use of a vehicle for the purpose of warming up employees. As such, all contractors and employees shall identify a place to warm up in advance. If discomfort continues and the onsite workers start to exhibit the signs of frostbite, hypothermia, trench foot or immersion foot, they should seek immediate medical attention.

3.3.2 Noise and Air Resources

Noise is a potential hazard associated with the operation of heavy equipment, power tools, pumps and generators. Hearing protection is required and shall be used in designated areas of the site as indicated by the posted signs.

3.3.3 Hand and Power Tools

In order to complete the various tasks for the project, personnel will utilize hand and power tools. The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut or struck by the tool, fire, and electrocution. Hand and power tools will be inspected prior to use. Proper personal protective equipment shall be worn while utilizing hand and power tools. Ground Fault Circuit Interrupters (GFCIs) are required for all portable electric tools.

3.3.4 Slips, Trips, and Falls

Working in and around the site will pose slip, trip and fall hazards due to equipment, piping, slippery surfaces that may be oil covered, or from surfaces that are wet from rain or ice. Potential adverse health effects

include falling to the ground and becoming injured or twisting an ankle. Good housekeeping at the site must be maintained at all times.

3.3.5 Fire and Explosion

Prior to starting all excavation work, a review of appropriate New York City maps will be conducted to identify potential hazards. The possibility of encountering fire and explosion hazards exists from under- ground utilities and gases. Therefore, all excavation equipment must be grounded.

3.3.6 Material Handling

Manual lifting of heavy objects may be required. Failure to follow proper lifting techniques can result in back injuries and strains. Back injuries are a serious concern as they are the most common workplace injury, often resulting in lost or restricted work time, and long treatment and recovery periods.

Whenever possible, heavy objects must be lifted and moved by mechanical devices rather than by manual effort. The mechanical devices will be appropriate for the lifting or moving task and will be operated only by trained and authorized personnel. Objects that require special handling or rigging will only be moved under the guidance of a person who has been specifically trained to move such objects, such as a Master Rigger or equivalent. Lifting devices, including equipment, slings, ropes, chains, and straps, will be inspected, certified, and labeled to confirm their weight capacities. Defective equipment will be taken out of service immediately and repaired or destroyed.

The wheels of any trucks being loaded or unloaded, and/or parked on an incline, will be chocked to prevent movement. If applicable, outriggers will be extended on a flat, firm surface during operation. The lift and swing path of a crane/equipment will be watched and maintained clear of obstructions. Personnel will not pass under a raised load, nor will a suspended load be left unattended. Personnel will not be carried on lifting equipment, unless it is specifically designed to carry passengers.

All reciprocating, rotating, or other moving parts will be guarded at all times. Accessible fire extinguishers will be made available in all mechanical lifting devices. All material must be stored in tiers, racked, blocked, or

otherwise secure to prevent sliding, falling, or collapse. All loads/material will be verified to be secure before transportation.

3.3.7 Confined Space/Excavation Hazards

Personnel entry into trenches or unshored (*e.g.*, lagging) excavations within the designated areas of concern will not be permitted. No other confined spaces are known to exist on Site. If entry into trenches or excavations is required, all work will stop until the CHASP has been revised to address the new hazards.

3.3.8 Working Near Equipment

Personnel working in the immediate vicinity of heavy equipment (*e.g.*, excavators, loaders, drill rigs, etc.) may encounter physical hazards resulting from contact with equipment. Field personnel should be aware of the presence of these hazards at all times and take appropriate action to avoid them. Due to the limited ability to communicate when wearing respiratory protection, the risk is increased. Workers must be careful to communicate with heavy equipment operators regarding their location, and should maintain a safe distance from operating equipment at all times. Prior to working around equipment, the site personnel will review appropriate hand signals with the operator.

Equipment will be equipped with back up alarms.

3.3.9 Electrical Safety

Personnel may utilize hand and power tools. The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut or struck by the tool, fire, and electrocution. Ground Fault Circuit Interrupters (GFCIs) are required for all portable electric tools.

3.3.10 Utilities

Prior to the start of any intrusive work, the location of above-ground and underground utilities and other structures will be completed by the contractor/subcontractor responsible for completing construction activities.

3.3.11 Vehicular Traffic

Portions of site activities (load in and load out) will be conducted in the street so vehicular and pedestrian traffic will be present. Appropriate precautions to protect the on-site workers and civilians should be used including the use of cones and traffic vests as appropriate.

3.4 Biological Hazards

During the course of the project, there is a potential for workers to come into contact with biological hazards such as animals and insects. As the potential for exposure to blood borne pathogens during identified site activities is anticipated to be low, a Blood Borne Pathogen Exposure Plan (BBPEP) is not required. A BBPEP will be prepared if site operation requires its implementation.

3.4.1 Animals

During site operations, animals such as dogs, cats, pigeons, mice, and rats may be encountered. Workers shall use discretion and avoid all contact with animals. Bites and scratches from dogs and cats can be painful and if the animal is rabid, the potential for contracting rabies exists. Contact with rat and mice droppings may lead to contracting hantavirus. Inhalation of dried pigeon droppings may lead to psittacosis. Cryptococcosis and histoplasmosis are also diseases associated with exposure to dried bird droppings but these are less likely to occur in this occupational setting.

3.4.2 Insects

Insects, including bees, wasps, hornets, mosquitoes, spiders, and ticks may be present at the site. Some individuals may have a severe allergic reaction to an insect bite or sting that can result in a life threatening condition. In addition, mosquito bites may lead to St. Louis encephalitis or West Nile encephalitis.

3.4.3 Wound Care

A source of occupational exposure may occur when an employee gives First Aid and or CPR to an individual who had infectious blood. The occupational exposure occurs when there is the possibility for an employee's eyes, mucous membranes, non-intact skin (i.e., cut and

abraded skin) to come into contact with potentially infectious materials from another employee. If an accident were to occur where First Aid would need to be administered, the person administering the First Aid will presume that any wounds and materials used are contaminated with BBP and should wear the appropriate PPE to prevent contact with these materials. Additionally, should the use of First Aid materials and or clothing that was potentially contaminated with BBP be encountered these materials should be properly containerized and transported to the nearest hospital for proper disposal.

3.5 Coronavirus

General Preventative Measures

Field personnel must follow general proper hygiene measures while in the field including:

- Avoid touching eyes, nose and mouth.
- Cover cough or sneeze with tissue, and throw in trash.
- Wash hands often with soap and water for 20 seconds after going to bathroom, before eating, after blowing nose, coughing or sneezing.
- Use hand sanitizer with at least 60% alcohol if soap and water are not available.
- Avoid physical contact with other people (e.g., no handshakes).
- Maintain a safe distance of at least 6 feet from other people (social distancing).
- Wear face coverings when around other worker to minimize spread of COVID-19. (May be required in certain states or locations.)

Construction Trailers

Employees should avoid use of shared construction trailers or where employees cannot maintain a safe distance (minimum 6 feet) from other workers. If trailer use is needed, areas such as desks, phones, chairs and other common areas, should be cleaned and disinfected before and after use. Protocols should be developed to minimize trailer use to essential personal, restrict use from any workers who are ill or showing symptoms of being ill, use if face coverings and ensure a safe distance of 6 feet can be established between workers.

Communication

Include Coronavirus topics and prevention topics in daily tailgate meetings to ensure Coronavirus awareness is communicated daily. Discussions can focus on general topics including: social distancing, prevention measures for field personnel, signs and symptoms and recent news on the Coronavirus. Site-specific topics should include minimizing face-to-face contact, disinfecting/sterilizing field equipment, use of PPE to reduce exposure, site security, use of face coverings and other potential exposure issues/concerns.

Sick/Ill Workers

No Langan employee is permitted to be onsite when ill and/or showing potential symptoms of the Coronavirus. Symptoms of the Coronavirus may appear 2-14 days after exposure and can range from mild to severe. The most common symptoms include: fever, fatigue, dry cough, shortness of breath chills, repeated shaking with chills, muscle pain, headache, sore throat, or new loss of taste or smell. If an employee or subcontractor is observed being ill or exhibiting symptoms of Coronavirus, employees must immediately utilize their Stop Work Authority and contact their project manager to address the situation. If an employee observes another worker onsite exhibiting symptoms of Coronavirus, immediately utilize Stop Work Authority and notify their project manager and site construction manager or safety officer. Work should resume when the safety and health of Langan and subcontractors is adequately addressed.

3.6 Task Hazard Analysis

The tasks to be completed during the proposed site work activities, as summarized in Section 1.3, are listed in Table 3 with a Hazard Analysis for each task.

3.7 Job Safety Analysis

A Job Safety Analysis (JSA) is a process to identify existing and potential hazards associated with each job or task so these hazards can be eliminated, controlled or minimized. JSAs will be reviewed at the beginning of each work day, when an employee begins a new task or moves to a new location. JSAs must be developed and reviewed by all parties involved. A blank JSA form and documentation of completed JSAs are in Attachment J.

3.8 Tailgate Safety Briefings

Before starting work each day or as needed, the Langan HSO will conduct a brief tailgate safety briefing meeting to assist site personnel in conducting their activities safely. Tailgate meetings will be documented on the form provided in Attachment A. Briefings will include the following:

- Scope of work for the day,
- Review of safety information relevant to planned tasks and environmental conditions
- New activities/task being conducted;
- Results of Jobsite Safety Inspection Checklist;
- Changes in work practices;
- Safe work practices; and
- Discussion and remedies for noted or observed deficiencies.

4.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

4.1 Levels of Protection

PPE must protect workers from the specific hazards they are likely to encounter on site. Selection of the appropriate PPE must take into consideration: (1) identification of the hazards or suspected hazards; (2) potential exposure routes; and, (3) the performance of the PPE construction (materials and seams) in providing a barrier to these hazards. Based on anticipated site conditions and the proposed work activities to be performed at the Site, Level D Protection will be used. The upgrading/downgrading of these levels of protection will be based on continuous air monitoring results as described in Section 5.0. The decision to modify standard PPE will be made by the HSO after conferring with the Langan Project Manager. The levels of protection are described below.

- **Level D Protection**
 - a. Safety glasses with sideshields or chemical splash goggles
 - b. Safety boots/shoes (toe-protected)
 - c. Hard hat
 - d. Long sleeve work shirt and work pants
 - e. Nitrile gloves
 - f. Hearing protection (as needed)
 - g. Reflective traffic vest

- **Level D Protection (Modified)**

- a. Safety glasses with sideshields or chemical splash goggles
- b. Safety boots/shoes (toe-protected)
- c. Disposable chemical-resistant boot covers
- d. Coveralls (polycoated Tyvek or equivalent to be worn when contact with wet contaminated soil, groundwater, or non-aqueous phase liquids is anticipated)
- e. Hard hat
- f. Long sleeve work shirt and work pants
- g. Nitrile gloves
- h. Hearing protection (as needed)
- i. Reflective traffic vest

- **Level C Protection**

- a. Full face-piece, air-purifying, cartridge*-equipped, NIOSH-approved respirator [*combo cartridge P100/OV/CL/HC/SD/CD/HS (escape)]
- b. Inner (latex) and outer (nitrile) chemical-resistant glove
- c. Chemical-resistant safety boots/shoes (toe-protected)
- d. Disposable chemical-resistant boot covers
- e. Hard hat
- f. Long sleeve work shirt and work pants
- g. Coveralls (Tyvek or equivalent, poly-coated Tyvek will be worn when contact, or anticipated contact with wet contaminated soils, ground water, and/or non-aqueous phase liquids (NAPL) is anticipated)
- h. Hearing protection (as needed)
- i. Reflective traffic vest

The action levels used in determining the necessary levels of respiratory protection and upgrading to Level C are provided in Table 4. The written Respiratory Protection Program is maintained by Langan's H&S Department. The monitoring procedures and equipment are outlined in Section 5.0.

4.2 Respirator Fit-Test

All Langan employees and subcontractors performing site work who could be exposed to hazardous substances at the work site are in possession of a full face-piece, air-purifying respirator and have been successfully quantitative fit-tested

within the past year. Quantitative fit-test records are maintained by Langan's H&S Department.

4.3 Respirator Cartridge Change-Out Schedule

Respiratory protection is required to be worn when certain action levels (Table 2) are reached. A respirator cartridge change-out schedule has been developed in order to comply with 29 CFR 1910.134. The respirator cartridge change-out schedule for this project is as follows:

- Cartridges shall be removed and disposed of at the end of each shift, when cartridges become wet or wearer experiences breakthrough, whichever occurs first.
- If the humidity exceeds 85%, then cartridges shall be removed and disposed of after 4 hours of use.

Respirators shall not be stored at the end of the shift with contaminated cartridges left on. Cartridges shall not be worn on the second day, no matter how short the time period was the previous day they were used.

5.0 AIR QUALITY MONITORING AND ACTIONS LEVELS

5.1 Monitoring During Site Operations

Atmospheric air monitoring results are used to provide data to determine when exclusion zones need to be established and when certain levels of personal protective equipment are required. For all instruments there are Site-specific action level criteria which are used in making field health and safety determinations. Other data, such as the visible presence of contamination or the steady state nature of air contaminant concentration, are also used in making field health and safety decisions. Therefore, the HSO may establish an exclusion zone or require a person to wear a respirator even though atmospheric air contaminant concentrations are below established CHASP action levels.

During site work involving disturbance of soil/fill at the site, real time air monitoring will be conducted for volatile organic compounds (VOCs). A photoionization detector (PID) and/or flame ionization detector (FID) will be used to monitor concentrations of VOCs at personnel breathing-zone height. Dust monitoring will

be accomplished with an aerosol monitor. Air monitoring will be the responsibility of the HSO or designee. Air monitoring will be conducted approximately every 30 minutes during ground intrusive activities on the project site. All manufacturers' instructions for instrumentation and calibration will be available onsite.

Subcontractors' air monitoring plans must be equal or more stringent as the Langan plan.

An air monitoring calibration log is provided in Attachment D of this CHASP.

5.1.1 Volatile Organic Compounds

Monitoring with a PID, such as a MiniRAE 2000 (10.6v) or equivalent will occur during intrusive work. Colormetric Indicator Tubes for benzene may be used as backup for the PID, if measurements remain above background monitor every 2 hours. The HSO will monitor the employee breathing zone at least every 30 minutes, or whenever there is any indication that concentrations may have changed (odors, visible gases, etc.) since the last measurement. If VOC levels are observed above 5 ppm for longer than 5 minutes or if the site PPE is upgraded to Level C, the HSO will begin monitoring the site perimeter at a location downwind of the workzone every 30 minutes in addition to the employee breathing zone. Instrument action levels for monitored gases are provided in Table 4.

5.1.2 Dust

During invasive procedures which have the potential for creating airborne dust, such as excavation of dry soils, a real time airborne dust monitor such as a Thermo Personal DataRam (pDR) or a TSI DustTrak should be used to monitor for air particulates. The HSO will monitor the employee breathing zone at least every 30 minutes, or whenever there is any indication that concentrations may have changed (appearance of visible dust) since the last measurement. If dust levels are observed to be greater than 0.100 mg/m³ or visible dust is observed for longer than 15 minutes or if the site PPE is upgraded to Level C, the HSO will begin monitoring the site perimeter at a location downwind of the AOC every 30 minutes in addition to the employee breathing zone. Instrument action levels for dust monitoring are provided in Table 4.

5.2 Monitoring Equipment Calibration and Maintenance

Instrument calibration shall be documented and included in a dedicated safety and health logbook or on separate calibration pages of the field book. All instruments shall be calibrated before and after each shift. Calibration checks may be used during the day to confirm instrument accuracy. Duplicate readings may be taken to confirm individual instrument response.

All instruments shall be operated in accordance with the manufacturers' specifications. Manufacturers' literature, including an operations manual for each piece of monitoring equipment will be maintained on site by the HSO for reference.

5.3 Determination of Background Levels

Background (BKD) levels for VOCs and dust will be established prior to intrusive activities within the AOC at an upwind location. A notation of BKD levels will be referenced in the daily monitoring log. BKD levels are a function of prevailing conditions. BKD levels will be taken in an appropriate upwind location as determined by the HSO.

Table 4 lists the instrument action levels.

6.0 COMMUNITY HEALTH AND SAFETY CONSIDERATIONS

Community air monitoring will be conducted in compliance with the NYSDOH Generic Community Air Monitoring Program (CAMP) outlined below.

The CAMP will include real-time monitoring for VOCs and particulates at the downwind perimeter of each designated work area when ground-intrusive work is in progress. Continuous monitoring will be required for all ground-intrusive work. Ground-intrusive work includes, but is not limited to, soil/fill excavation and handling and utility trenching. Periodic monitoring for VOCs may be required during non-intrusive work such as the collection of soil samples. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location and taking a reading prior to leaving a sample location.

CAMP monitoring of total VOC levels will be conducted using PIDs, and monitoring for particulates will be conducted using particulate sensors equipped with filters that can detect airborne particulates less than 10 microns in diameter (PM10). Monitoring for

particulates and odors will be conducted during ground-intrusive work by a field engineer, scientist, or geologist under the supervision of the RE. The work zone is defined as the general area in which machinery is operating in support of remediation. A portable PID will be used to monitor the work zone and for periodic monitoring of total VOC levels during work such as soil sampling. The site perimeter will be visually monitored for fugitive dust emissions.

The following actions will be taken based on total VOC levels measured:

- If total VOC levels exceed 5 ppm above background for the 15-minute average at the perimeter, work will be temporarily halted and monitoring continued. If levels readily decrease (per instantaneous readings) below 5 ppm above background, work will resume with continued monitoring.
- If total VOC levels at the downwind perimeter of the work zone persist at levels in excess of 5 ppm above background but less than 25 ppm, work will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work will resume provided that the total VOC level 200 feet downwind of the hot zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less – but in no case less than 20 feet, is below 5 ppm above background for the 15-minute average.
- If the total VOC level is above 25 ppm at the perimeter of the hot zone, work will be shut down.

The following actions will be taken based on dust levels measured or visual dust observations:

- If the downwind particulate level is $100 \mu\text{g}/\text{m}^3$ greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression must be employed. Work may continue with dust suppression techniques provided that downwind PM10 levels do not exceed $150 \mu\text{g}/\text{m}^3$ above the background level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM10 levels are greater than $150 \mu\text{g}/\text{m}^3$ above the background level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the

downwind PM10 concentration to within 150 µg/m³ of the upwind level and in preventing visible dust migration.

Sustained concentrations of VOCs or PM10 will be reported to the NYSDEC and NYSDOH Project Managers and included in the daily report. In addition, a map showing the location of the CAMP station and work zone air monitoring station will be included in the daily report.

7.0 WORK ZONES AND DECONTAMINATION

7.1 Site Control

Work zones are intended to control the potential spread of contamination throughout the site and to assure that only authorized individuals are permitted into potentially hazardous areas.

Any person working in an area where the potential for exposure to site contaminants exists will only be allowed access after providing the HSO with proper training and medical documentation.

Exclusion Zone (EZ) - All activities which may involve exposure to site contaminants, hazardous materials and/or conditions should be considered an EZ. Decontamination of field equipment will also be conducted in the Contaminant Reduction Zone (CRZ) which will be located on the perimeter of the EZ. The EZ and the CRZ will be clearly delineated by cones, tapes or other means. The HSO may establish more than one EZ where different levels of protection may be employed or different hazards exist. The size of the EZ shall be determined by the HSO allowing adequate space for the activity to be completed, field members and emergency equipment.

7.2 Contamination Control

7.2.1 Personnel Decontamination Station

Personal hygiene, coupled with diligent decontamination, will significantly reduce the potential for exposure.

7.2.2 Minimization of Contact with Contaminants

During completion of all site activities, personnel should attempt to minimize the chance of contact with contaminated materials. This involves a conscientious effort to keep "clean" during site activities. All personnel should minimize kneeling, splash generation, and other physical contact with contamination as PPE is intended to minimize accidental contact. This may ultimately minimize the degree of decontamination required and the generation of waste materials from site operations.

Field procedures will be developed to control over spray and runoff and to ensure that unprotected personnel working nearby are not affected.

7.2.3 Personnel Decontamination Sequence

Decontamination will be performed by removing all PPE used in EZ and placing it in drums/trash cans at the CRZ. Baby wipes shall be available for wiping hands and face. Drums/trash cans will be labeled by the field crews in accordance with all local, state, and federal requirements. Management plans for contaminated PPE, tools and Investigative Derived Waste (i.e., soil cutting) are provided below.

7.2.4 Emergency Decontamination

If circumstances dictate that contaminated clothing cannot be readily removed, then remove gross contamination and wrap injured personnel with clean garments/blankets to avoid contaminating other personnel or transporting equipment. If the injured person can be moved, he/she will be decontaminated by site personnel as described above before emergency responders handle the victim. If the person cannot be moved because of the extent of the injury (a back or neck injury), provisions shall be made to ensure that emergency response personnel will be able to respond to the victim without being exposed to potentially hazardous atmospheric conditions. If the potential for inhalation hazards exist, such as with open excavation, this area will be covered with polyethylene sheeting to eliminate any potential inhalation hazards. All emergency personnel are to be immediately informed of the injured person's condition, potential contaminants, and provided with all pertinent data.

7.2.5 Hand-Held Equipment Decontamination

Hand-held equipment includes all monitoring instruments as stated earlier, samples, hand tools, and notebooks. The hand-held equipment is dropped at the first decontamination station to be decontaminated by one of the decontamination team members. These items must be decontaminated or discarded as waste prior to removal from the CRZ.

To aid in decontamination, monitoring instruments can be sealed in plastic bags or wrapped in polyethylene. This will also protect the instruments against contaminants. The instruments will be wiped clean using wipes or paper towels if contamination is visually evident. Sampling equipment, hand tools, etc. will be cleaned with non-phosphorous soap to remove any potentially contaminated soil, and rinsed with deionized water. All decontamination fluids will be containerized and stored on-site pending waste characterization sampling and appropriate off-site disposal.

7.2.6 Heavy Equipment Decontamination

All heavy equipment and vehicles arriving at the work site will be free from contamination from offsite sources. Any vehicles arriving to work that are suspected of being impacted will not be permitted on the work site. Potentially contaminated heavy equipment will not be permitted to leave the EZ unless it has been thoroughly decontaminated and visually inspected by the HSO or his designee.

7.3 Communications

The following communications equipment will be utilized as appropriate.

- Telephones - A cellular telephone will be located with the HSO for communication with the HSM and emergency support services/facilities.
- Hand Signals - Hand signals shall be used by field teams, along with the buddy system. The entire field team shall know them before operations commence and their use covered during site-specific training. Typical hand signals are the following:

<u>Signal</u>	<u>Meaning</u>
Hand gripping throat	Out of air, can't breathe
Grip on partner's wrist or placement of both hands around partner's waist	Leave area immediately, no debate
Hands on top of head	Need assistance
Thumbs up	Okay, I'm all right, I understand
Thumbs down	No, negative

8.0 MEDICAL SURVEILLANCE

All personnel who will be performing field work involving potential exposure to toxic and hazardous substances will be required to have passed an initial baseline medical examination, with annual follow-up medical exams thereafter, consistent with 29 CFR 1910.120(f). Medical evaluations will be performed by, or under the direction of, a physician board-certified in occupational medicine. Results of medical evaluations are maintained by Langan's H&S Department.

9.0 EMERGENCY RESPONSE PLAN

This section establishes procedures and provides information for use during a project emergency. Emergencies happen unexpectedly and quickly, and require an immediate response; therefore, contingency planning and advanced training of staff is essential. Specific elements of emergency support procedures that are addressed in the following subsections include communications, local emergency support units, preparation for medical emergencies, first aid for injuries incurred on site, record keeping, and emergency site evacuation procedures. In case of emergency, in addition to 911 the Langan Incident/Injury Hotline (973-560-4699) should be called as soon as possible.

9.1 Responsibilities

9.1.1 Health and Safety Officer (HSO)

The HSO is responsible for ensuring that all personnel are evacuated safely and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. The HSO is responsible for ensuring the HSM are notified of all incidents, all injuries, near misses, fires, spills,

releases or equipment damage. The HSO is required to immediately notify the HSM of any fatalities or catastrophes (three or more workers injured and hospitalized) so that the HSM can notify OSHA within the required time frame.

9.1.2 Emergency Coordinator

The HSO or their designated alternate will serve as the Emergency Coordinator. The Emergency Coordinator is responsible for ensuring that all personnel are evacuated safely and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. They are also responsible for ensuring the HSM are notified of all incidents, all injuries, near misses, fires, spills, releases or equipment damage. The Emergency Coordinator is required to immediately notify the HSM of any fatalities or catastrophes (three or more workers injured and hospitalized).

The Emergency Coordinator shall locate emergency phone numbers and identify hospital routes prior to *beginning* work on the sites. The Emergency Coordinator shall make necessary arrangements to be prepared for any emergencies that could occur.

The Emergency Coordinator is responsible for implementing the Emergency Response Plan.

9.1.3 Site Personnel

Project site personnel are responsible for knowing the Emergency Response Plan and the procedures contained herein. Personnel are expected to notify the Emergency Coordinator of situations that could constitute a site emergency. Project site personnel, including all subcontractors will be trained in the Emergency Response Plan.

9.2 Communications

Once an emergency situation has been stabilized or as soon as practically possible, the HSO will contact the Langan Incident/Injury Hotline (973-560-4699) and Project Manager of identify any emergency situation.

9.3 Local Emergency Support Units

In order to be able to deal with any emergency that might occur during investigative activities at the site, Attachment E will be available in the field vehicles and provided to all personnel conducting work within the EZ.

Figure 3 shows the hospital route map. Outside emergency number 911 and local ambulance should be relied on for response to medical emergencies and transport to emergency rooms. Due to traffic congestion that is prevalent in the New York metropolitan area, alternate hospital routes will need to be considered. The Emergency Coordinator will determine the appropriate route based on time of day and traffic patterns. Changes in the referenced primary facilities shall be documented with the CHASP Field Change Authorization Request Form (Attachment B).

The Emergency Phone Numbers listed are preliminary. Upon mobilization, the HSO shall verify all numbers and document the changes in the Site Logbook. Any changes shall also be documented with the CHASP Field Change Authorization Request Form.

Hospital route maps will be provided to all field personnel.

9.4 Pre-Emergency Planning

Langan will communicate directly with administrative personnel from the emergency room at the hospital in order to determine whether the hospital has the facilities and personnel needed to treat cases of trauma resulting from any of the contaminants expected to be found on the site. Instructions for finding the hospital will be posted conspicuously in the site office and in each site vehicle.

9.5 Emergency Medical Treatment

The procedures and rules in this CHASP are designed to prevent employee injury. However, should an injury occur, no matter how slight, it will be reported to the HSO on site immediately. First-aid equipment will be available on site at the following locations:

First Aid Kit:	Vehicles
Emergency Eye Wash:	Vehicles

During the site safety briefing, project personnel will be informed of the location of the first aid station(s) that has been set up. Unless they are in immediate danger, severely injured persons will not be moved until paramedics can attend to them. Some injuries, such as severe cuts and lacerations or burns, may require immediate treatment. Any first aid instructions that can be obtained from doctors or paramedics, before an emergency-response squad arrives at the site or before the injured person can be transported to the hospital, will be followed closely.

Personnel with current first aid and CPR certification will be identified.

Only in non-emergency situations will an injured person be transported to the hospital by means other than an ambulance.

Nearest hospital:

**Bellevue Hospital Center: Emergency Room
462 1st Avenue
New York, New York 10016
Telephone: 212-562-8052**

(directions from site to hospital found on Figure 3)

9.6 Non-Emergency Medical Treatment

In case of injury to personnel, which is not a medical emergency the employee will contact WorkCare at (1-888-449-7787). WorkCare provides access 24 hours / 7 days a week to experienced occupational health nurses and physicians who confer with employees at the onset of a work-related injury or illness. WorkCare will provide over the phone injury treatment or direct employees to medical treatment by third party provider, if appropriate.

9.7 Emergency Site Evacuation Routes and Procedures

All project personnel will be instructed on proper emergency response procedures and locations of emergency telephone numbers during the initial site safety meeting. If an emergency occurs as a result of the site redevelopment and remediation activities, including but not limited to fire, explosion or significant release of toxic gas into the atmosphere, the Langan Project Manager will be verbally notified immediately. All heavy equipment will be shut down and all personnel will evacuate the work areas and assemble at the nearest intersection to be accounted for and to receive further instructions.

9.8 Fire Prevention and Protection

In the event of a fire or explosion, procedures will include immediately evacuating the site and notification of the Langan Project Manager of the redevelopment and remediation activities. Portable fire extinguishers will be provided at the work zone. The extinguishers located in the various locations should also be identified prior to the start of work. No personnel will fight a fire beyond the stage where it can be put out with a portable extinguisher (incipient stage).

9.8.1 Fire Prevention

Fires will be prevented by adhering to the following precautions:

- Good housekeeping and storage of materials.
- Storage of flammable liquids and gases away from oxidizers.
- Shutting off engines to refuel.
- Grounding and bonding metal containers during transfer of flammable liquids.
- Use of UL approved flammable storage cans.
- Fire extinguishers rated at least 10 pounds ABC located on all heavy equipment, in all trailers and near all hot work activities.

The person responsible for the control of fuel source hazards and the maintenance of fire prevention and/or control equipment is the HSO.

9.9 Significant Vapor Release

Based on the proposed tasks, the potential for a significant vapor release is low. However, if a release occurs, the following steps will be taken:

- Move all personnel to an upwind location. All non-essential personnel shall evacuate.
- Upgrade to Level C Respiratory Protection.
- Downwind perimeter locations shall be monitored for volatile organics.

- If the release poses a potential threat to human health or the environment in the community, the Emergency Coordinator shall notify the Langan Project Manager.
- Local emergency response coordinators will be notified.

9.10 Overt Chemical Exposure

The following are standard procedures to treat chemical exposures. Other, specific procedures detailed on the Safety Data Sheet (SDS) will be followed, when necessary.

SKIN AND EYE: Use copious amounts of soap and water from eye-wash kits and portable hand wash stations.

CONTACT: Wash/rinse affected areas thoroughly, then provide appropriate medical attention. Skin shall also be rinsed for 15 minutes if contact with caustics, acids or hydrogen peroxide occurs. Affected items of clothing shall also be removed from contact with skin.

Providing wash water and soap will be the responsibility of each individual contractor or subcontractor on-site.

9.11 Decontamination During Medical Emergencies

If emergency life-saving first aid and/or medical treatment is required, normal decontamination procedures may need to be abbreviated or omitted. The HSO or designee will accompany contaminated victims to the medical facility to advise on matters involving decontamination when necessary. The outer garments can be removed if they do not cause delays, interfere with treatment or aggravate the problem. Respiratory equipment must always be removed. Protective clothing can be cut away. If the outer contaminated garments cannot be safely removed on site, a plastic barrier placed between the injured individual and clean surfaces should be used to help prevent contamination of the inside of ambulances and/or medical personnel. Outer garments may then be removed at the medical facility. No attempt will be made to wash or rinse the victim if his/her injuries are life threatening, unless it is known that the individual has been contaminated with an extremely toxic or corrosive material which could also cause severe injury or loss

of life to emergency response personnel. For minor medical problems or injuries, the normal decontamination procedures will be followed.

9.12 Incident Reporting

Once first aid and/or emergency response needs have been met, the following parties are to be contacted:

- WorkCare (1-888-449-7787)
- Langan Incident/Injury Report Hotline (973-560-4699)
- Langan Project Manager, Amanda Forsburg (973-560-4574)
- Langan Health and Safety Manager, Tony Moffa (215-491-6500)
- The employer of any injured worker who is not a Langan employee

For emergencies involving personal injury and/or exposure including near-misses, the HSO or designee will complete and submit an Incident Report form (Attachment F) within 24 hours. If the employee involved is not a Langan employee, his employer shall receive a copy of the report.

9.13 Adverse Weather Conditions

In the event of adverse weather conditions, the HSO will determine if work will continue without potentially risking the safety of all field workers. Some of the items to be considered prior to determining if work should continue are:

- Potential for heat stress and heat-related injuries.
- Potential for cold stress and cold-related injuries.
- Treacherous weather-related working conditions (hail, rain, snow, ice, high winds).
- Limited visibility (fog).
- Potential for electrical storms.
- Earthquakes.
- Other major incidents.

Site activities will be limited to daylight hours, or when suitable artificial light is provided, and acceptable weather conditions prevail. The HSO will determine the need to cease field operations or observe daily weather reports and evacuate, if necessary, in case of severe inclement weather conditions.

9.14 Spill Control and Response

All small spills/environmental releases shall be contained as close to the source as possible. Whenever possible, the SDS will be consulted to assist in determining proper waste characterization and the best means of containment and cleanup. For small spills, sorbent materials such as sand, sawdust or commercial sorbents should be placed directly on the substance to contain the spill and aid recovery. Any acid spills should be diluted or neutralized carefully prior to attempting recovery. Berms of earthen or sorbent materials can be used to contain the leading edge of the spills. All spill containment materials will be properly disposed. An exclusion zone of 50 to 100 feet around the spill area should be established depending on the size of the spill.

All contractor vehicles shall have spill kits on them with enough material to contain and absorb the worst-case spill from that vehicle. All vehicles and equipment shall be inspected prior to be admitted on site. Any vehicle or piece of equipment that develops a leak will be taken out of service and removed from the job site.

The following seven steps shall be taken by the Emergency Coordinator:

1. Determine the nature, identity and amounts of major spills.
2. Make sure all unnecessary persons are removed from the spill area.
3. Notify the HSO immediately.
4. Use proper PPE in consultation with the HSO.
5. If a flammable liquid, gas or vapor is involved, remove all ignition sources and use non-sparking and/or explosion-proof equipment to contain or clean up the spill (diesel-only vehicles, air-operated pumps, etc.)
6. If possible, try to stop the leak with appropriate material.
7. Remove all surrounding materials that can react or compound with the spill.

In addition to the spill control and response procedures described in this CHASP, Langan personnel will coordinate with the designated project manager relative to

spill response and control actions. Notification to the Project Manager must be immediate and, to the extent possible, include the following information:

- Time and location of the spill.
- Type and nature of the material spilled.
- Amount spilled.
- Whether the spill has affected or has a potential to affect a waterway or sewer.
- A brief description of affected areas/equipment.
- Whether the spill has been contained.
- Expected time of cleanup completion. If spill cleanup cannot be handled by Langan's on-site personnel alone, such fact must be conveyed to the Project Manager immediately.

Langan shall not make any notification of spills to outside agencies. The client will notify regulatory agencies as per their reporting procedures.

9.15 Emergency Equipment

The following minimum emergency equipment shall be kept and maintained on site:

- Industrial first aid kit.
- Fire extinguishers (one per site).

9.16 Restoration and Salvage

After an emergency, prompt restoration of utilities, fire protection equipment, medical supplies and other equipment will reduce the possibility of further losses. Some of the items that may need to be addressed are:

- Refilling fire extinguishers.
- Refilling medical supplies.
- Recharging eyewashes and/or showers.
- Replenishing spill control supplies.

10.0 TRAINING

10.1 General Health and Safety Training

Completion of an initial 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training program (or its equivalent) as detailed in OSHA's 29 CFR 1910.120(e) is required for all employees who will perform work in areas where the potential for a toxic exposure exists. Annual 8-hour refresher training is also required to maintain competencies to ensure a safe work environment.

10.2 Site-Specific Training

Prior to commencement of site activities, all field personnel assigned to the project will have completed training that will specifically address the activities, procedures, monitoring, and equipment used in the site operations. It will include a documented verbal review of the entire CHASP and all the provisions within the CHASP document. Should any new employees arrive on-site, they will also be given a documented full CHASP review – or one that address the appropriate tasks that remain at the time of the new employee's arrival.

10.3 Onsite Safety Briefings

Project personnel and visitors will participate in documented daily on-site health and safety briefings ("Tailgate Talks") led by the HSO to assist site personnel in safely conducting their work activities. The briefings will include information on operations to be conducted that shift, changes in work practices or changes in the site's environmental conditions, as well as periodic reinforcement of previously discussed topics. The briefings will also provide a forum to facilitate conformance with safety requirements and to identify performance deficiencies related to safety during daily activities or as a result of safety inspections. The meetings will also be an opportunity for the work crews to be updated on monitoring results. Prior to starting any new activity, a training session will be held for crew members involved in the activity. The Tailgate Safety Briefing form (Attachment A) can be used to facilitate this effort.

10.4 Hazard Communication

All material brought on-site will be in the appropriate containers and will be properly labeled. The SDS for unleaded gasoline, diesel fuel, and hydraulic fluid are attached. Langan's written Hazard Communication program, in compliance with 29 CFR 1910.1200, is maintained by Langan's H&S Department.

11.0 RECORDKEEPING

The following is a summary of required health and safety logs, reports and recordkeeping.

11.1 Field Change Authorization Request

A field change authorization request is to be completed for requesting a change to this CHASP (Attachment B). Any changes to the work to be performed that is not included in the CHASP will require an Addendum that is approved by the Langan Project Manager and Langan HSM to be prepared. Approved changes will be reviewed with all field personnel at a safety briefing.

11.2 Medical and Training Records

Copies or verification of training (40-hour, 8-hour, supervisor, site-specific training, documentation of three-day OJT, and respirator fit-test records) and medical clearance for Site work and respirator use will be maintained in the office and available upon request. Records for all subcontractor employees must also be available upon request. All employee medical records will be maintained by Langan's H&S Department.

11.3 Onsite Log

A log of personnel on site each day will be kept by the HSO or designee.

11.4 Daily Safety Meetings ("Tailgate Talks")

Completed Tailgate Safety Briefing forms will be maintained by the HSO.

11.5 Exposure Records

All personal monitoring results, laboratory reports, calculations and air sampling data sheets are part of an employee exposure record. These records will be maintained by the HSO during site work. At the end of the project they will be maintained according to 29 CFR 1910.1020.

11.6 Hazard Communication Program/SDS

Safety Data Sheets (SDS) have been obtained for applicable substances and are included in this CHASP (Attachment G). Langan's written Hazard Communication program, in compliance with 29 CFR 1910.1200, is maintained by Langan's H&S Department.

11.7 Documentation

Employees are required to contact WorkCare at (1-888-449-7787) to document incidents/injuries which are not medical emergencies. Immediately following an incident or near miss, unless emergency medical treatment is required, either the employee or a coworker must contact the Langan Incident/Injury Hotline at (973-560-4699) and the client representative to report the incident or near miss. A written report must be completed and submitted to the client representative within 24 hours of the incident. For emergencies involving personnel injury and/or exposure, employee will complete and submit the Langan Incident/Injury Report to the Langan Corporate Health and Safety Manager as soon as possible following the incident. Accidents will be investigated in-depth to identify all causes and to recommend hazard control measures.

12.0 FIELD PERSONNEL REVIEW

This form serves as documentation that field personnel have been verbally given a full CHASP review by Langan personnel, and understand the provisions of this EHS Plan. It is maintained on site by the HSO as a project record.

Each field team member shall sign this section after Site-specific training is completed and before being permitted to work onsite.

<i>Name (Print and Sign)</i>	<i>Company</i>	<i>Date</i>

TABLES

TABLE 1
SUSPECTED CONTAMINANTS OF CONCERN
23-30 BORDEN AVENUE
LONG ISLAND CITY, NEW YORK

Contaminant Of Concern	Affected Media
VOLATILES	
1,1,1-Trichloroethane	Soil Vapor / Groundwater
1,1,2-Trichloroethane	Groundwater
1,1-Dichloroethane	Groundwater
1,1-Dichloroethene	Soil Vapor
1,2-Dichloroethene	Groundwater
cis-1,2-Dichloroethene	Soil Vapor / Groundwater
1,2,4-Trimethylbenzene	Soil / Soil Vapor / Groundwater
1,3,5-Trimethylbenzene	Soil Vapor / Groundwater
Acetone	Soil / Groundwater
Benzene	Soil / Soil Vapor / Groundwater
Carbon Tetrachloride	Soil Vapor
Chloroethane	Groundwater
Ethyl Acetate	Groundwater
Ethylbenzene	Soil / Soil Vapor / Groundwater
Isopropylbenzene	Groundwater
Methyl Ethyl Ketone	Soil
Methylene Chloride	Soil Vapor
Naphthalene	Soil
n-Propylbenzene	Groundwater
Tetrachlorethylene	Soil Vapor / Groundwater
Trichloroethylene	Soil Vapor / Groundwater
Toluene	Soil / Soil Vapor / Groundwater
Total Volatiles	Soil / Soil Vapor / Groundwater
Vinyl Chloride	Groundwater
Xylenes (m,p-Xylene, and o-Xylene)	Soil / Soil Vapor / Groundwater
SEMI-VOLATILES	
2,4-Dimethylphenol	Groundwater
3&4 Methylphenol	Soil
Acenaphthene	Soil / Groundwater
Benzo(a)anthracene	Soil / Groundwater
Benzo(b)fluoranthene	Soil / Groundwater
Benzo(k)fluoranthene	Soil / Groundwater
Benzo(a)pyrene	Soil / Groundwater
Biphenyl	Groundwater
Chrysene	Soil / Groundwater
Dibenzo(a,h)anthracene	Soil / Groundwater
Dibenzofuran	Soil
Fluorene	Groundwater
Fluoranthene	Soil
Indeno (1,2,3-cd) pyrene	Soil / Groundwater
Naphthalene	Soil / Groundwater

TABLE 1
SUSPECTED CONTAMINANTS OF CONCERN
23-30 BORDEN AVENUE
LONG ISLAND CITY, NEW YORK

SEMI-VOLATILES	
Pentachlorophenol	Groundwater
Phenanthrene	Soil / Groundwater
Phenol	Groundwater
Pyrene	Soil
PESTICIDES	
4,4'-DDD	Soil
4,4'-DDE	Soil
4,4'-DDT	Soil
PCBs	
Total PCBs	Soil
METALS	
Antimony	Groundwater
Arsenic	Soil / Groundwater
Barium	Soil
Cadmium	Soil
Copper	Soil
Lead	Soil
Iron	Groundwater
Magnesium	Groundwater
Manganese	Soil / Groundwater
Mercury	Soil
Nickel	Soil / Groundwater
Selenium	Groundwater
Silver	Soil
Sodium	Groundwater
Zinc	Soil
Per- and Polyfluoroalkyl Substances (PFAS)	
Perfluorobutanoic Acid (PFBA)	Groundwater
Perfluoroheptanoic Acid (PFHpA)	Groundwater
Perfluorohexanoic Acid (PFHxA)	Groundwater
Perfluorooctanesulfonic Acid (PFOS)	Soil / Groundwater
Perfluorooctanoic Acid (PFOA)	Groundwater
Perfluoropentanoic Acid (PFPeA)	Groundwater
Total PFAS	Groundwater

TABLE 2
SELECTED POTENTIAL CHEMICAL EXPOSURE LIMITS AND HEALTH EFFECTS
23-30 BORDEN AVENUE
LONG ISLAND CITY, NEW YORK

Chemical	Permissible Exposure Limit	IDLH Limit	Exposure Routes	Exposure Symptoms
1,1,2-Trichloroethane	10 ppm	1,000 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritate eyes, nose; central nervous system depression; liver, kidney damage; dermatitis; [potential occupational carcinogen]
1,1-Dichloroethane	100 ppm	3,000 ppm	Inhalation, ingestion, skin and/or eye contact	Irritate skin; central nervous system depression; liver, kidney, lung damage
1,2-Dichloroethene	200 ppm	1,000 ppm	Inhalation, ingestion, skin and/or eye contact	Irritate eyes, respiratory system; central nervous system depression
1,2,4-Trimethylbenzene	> 0 ppm	---	Inhalation, ingestion, skin and/or eye contact	Irritate eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)
1,3,5-Trimethylbenzene	> 0 ppm	---	Inhalation, ingestion, skin and/or eye contact	Irritate eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)
Acetone	1000 ppm	2500 ppm	inhalation, ingestion, skin and/or eye contact	irritation eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis

TABLE 2
SELECTED POTENTIAL CHEMICAL EXPOSURE LIMITS AND HEALTH EFFECTS
23-30 BORDEN AVENUE
LONG ISLAND CITY, NEW YORK

Chemical	Permissible Exposure Limit	IDLH Limit	Exposure Routes	Exposure Symptoms
Benzene	1 ppm	50 ppm	Inhalation, Skin Absorption, Ingestion, skin and/or eye contact	Irritate eyes, skin, nose; respiratory system; giddiness; head, nausea, staggered gait; fatigue, anorexia, lassitude; dermatitis; bone marrow depression; [carcinogenic]
Carbon Tetrachloride	10 ppm	200 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritate eyes, skin; central nervous system depression; nausea, vomiting; liver, kidney injury; drowsiness, dizziness, incoordination; [potential occupational carcinogen]
Ethyl Acetate	400 ppm	2000 ppm	Inhalation, ingestion, skin and/or eye contact	Irritate eyes, skin, nose, throat; narcosis; dermatitis
Ethylbenzene	100 ppm	800 ppm (10% LEL)	Inhalation, Ingestion, skin and/or eye contact	Irritate eyes, skin, mucous membrane ;headache, dermatitis; narcosis, coma
Methylene Chloride	25 ppm	2300 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritate eyes, skin; lassitude (weakness, exhaustion), drowsiness, dizziness; numb, tingle limbs; nausea; [potential occupational carcinogen]
Naphthalene	10 ppm	250 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritate eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; jaundice; hematuria (blood in the urine), renal shutdown; dermatitis, optical neuritis, corneal damage

TABLE 2
SELECTED POTENTIAL CHEMICAL EXPOSURE LIMITS AND HEALTH EFFECTS
23-30 BORDEN AVENUE
LONG ISLAND CITY, NEW YORK

Chemical	Permissible Exposure Limit	IDLH Limit	Exposure Routes	Exposure Symptoms
Tetrachloroethene	15 ppm	150 ppm	Inhalation, Skin Absorption, Ingestion, skin and/or eye contact	Nausea, vomiting, abdominal pain, tremor fingers, jaundice, hepatitis, liver tenderness, dermatitis, monocytosis, kidney damage [potential occupational carcinogen]
Trichloroethene	100 ppm	1,000 ppm	Inhalation, Skin Absorption, Ingestion, skin and/or eye contact	Irritation eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen]
Toluene	200 ppm	500 ppm	Inhalation, Skin Absorption, Ingestion, skin and/or eye contact	Irritate eyes, nose; fatigue, weakness, confusion, euphoria, dizziness, headache; dilated pupils, lacrimation; nervousness, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage; mucous membrane; narcosis, coma
Total Volatile Organics	15 ppm	150 ppm	Inhalation, Skin Absorption, Ingestion	Irritate eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen]
Vinyl Chloride	5 ppm over 15 minutes	> 0 ppm	Inhalation, skin and/or eye contact (liquid)	Lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite; [potential occupational carcinogen]

TABLE 2
SELECTED POTENTIAL CHEMICAL EXPOSURE LIMITS AND HEALTH EFFECTS
23-30 BORDEN AVENUE
LONG ISLAND CITY, NEW YORK

Chemical	Permissible Exposure Limit	IDLH Limit	Exposure Routes	Exposure Symptoms
Xylenes	100 ppm	900 ppm	Inhalation, Skin Absorption, Ingestion, skin and/or eye contact	Irritate eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corn vacuolization; anorexia, nausea, vomit, abdominal pain; dermatitis
3&4 Methylphenol	5 ppm	250 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritate eyes, skin, mucous membrane; central nervous system effects: confusion, depression, resp failure; dyspnea (breathing difficulty), irreg rapid resp, weak pulse; eye, skin burns; dermatitis; lung, liver, kidney, pancreas damage
Benzo(a)anthracene	0.2 mg/mg ³	80 mg/m ³	Inhalation, Skin Absorption, Ingestion	Irritate eyes, skin, upper respiratory system, cough
Benzo(b)fluoranthene	0.2 mg/mg ³	80 mg/m ³	Inhalation, Skin Absorption, Ingestion	Irritate eyes, skin, upper respiratory system, cough
Benzo(k)fluoranthene	0.2 mg/mg ³	80 mg/m ³	Inhalation, Skin Absorption, Ingestion	Irritate eyes, skin, upper respiratory system, cough
Benzo(a)pyrene	0.2 mg/mg ³	80 mg/m ³	Inhalation, Skin Absorption, Ingestion	Irritate eyes, skin, upper respiratory system, cough
Chrysene	0.2 mg/mg ³	80 mg/m ³	Inhalation, Skin Absorption, Ingestion	Irritate eyes, skin, upper respiratory system, cough
Dibenzo(a,h)anthracene	0.2 mg/mg ³	80 mg/m ³	Inhalation, Skin Absorption, Ingestion	Irritate eyes, skin, upper respiratory system, cough
Flouranthene	0.2 mg/mg ³	80 mg/m ³	Inhalation, Skin Absorption, Ingestion	Irritate eyes, skin, upper respiratory system, cough
Indeno (1,2,3-cd) pyrene	0.2 mg/mg ³	80 mg/m ³	Inhalation, Skin Absorption, Ingestion	Irritate eyes, skin, upper respiratory system, cough

TABLE 2
SELECTED POTENTIAL CHEMICAL EXPOSURE LIMITS AND HEALTH EFFECTS
23-30 BORDEN AVENUE
LONG ISLAND CITY, NEW YORK

Chemical	Permissible Exposure Limit	IDLH Limit	Exposure Routes	Exposure Symptoms
Naphthalene	10 ppm	250 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritate eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; jaundice; hematuria (blood in the urine), renal shutdown; dermatitis, optical neuritis, corneal damage
Pentachlorophenol	0.5 mg/m ³	2.5 mg/m ³	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritate eyes, nose, throat; sneezing, cough; lassitude (weakness, exhaustion), anorexia, weight loss; sweating; headache, dizziness; nausea, vomiting; dyspnea (breathing difficulty), chest pain; high fever; dermatitis
Phenanthrene	0.2 mg/m ³	80 mg/m ³	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]
Phenol	5 ppm	250 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritate eyes, nose, throat; anorexia, weight loss; lassitude (weakness, exhaustion), muscle ache, pain; dark urine; cyanosis; liver, kidney damage; skin burns; dermatitis; ochronosis; tremor, convulsions, twitching
Pyrene	0.2 mg/m ³	80 mg/m ³	Inhalation, Skin Absorption, Ingestion	Irritate eyes, skin, upper respiratory system, cough

TABLE 2
SELECTED POTENTIAL CHEMICAL EXPOSURE LIMITS AND HEALTH EFFECTS
23-30 BORDEN AVENUE
LONG ISLAND CITY, NEW YORK

Chemical	Permissible Exposure Limit	IDLH Limit	Exposure Routes	Exposure Symptoms
Pesticides	1 mg/m ³	500 mg/m ³	Inhalation, Skin Absorption, Ingestion, skin and/or eye contact	Irritate eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen]
Antimony	0.5 mg/m ³	50 mg/m ³	Inhalation, ingestion, skin and/or eye contact	Irritate eyes, skin, nose, throat, mouth; cough; dizziness; headache; nausea, vomiting, diarrhea; stomach cramps; insomnia; anorexia; unable to smell properly
Arsenic	0.010 mg/m ³	5 mg/m ³	Inhalation, Ingestion, Skin Absorption, Skin and/or Eye Contact	Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, resp irritation, hyperpigmentation of skin, [potential occupational carcinogen]
Barium	0.5 mg/m ³	50 mg/m ³	Inhalation, ingestion, skin and/or eye contact	Irritate eyes, skin, upper respiratory system; skin burns; gastroenteritis; muscle spasm; slow pulse, extrasystoles; hypokalemia
Copper	1 mg/m ³	100 mg/m ³	Inhalation, Ingestion, skin and/or eye contact	Irritation eyes, respiratory system; cough, dyspnea (breathing difficulty), wheezing; [potential occupational carcinogen]

TABLE 2
SELECTED POTENTIAL CHEMICAL EXPOSURE LIMITS AND HEALTH EFFECTS
23-30 BORDEN AVENUE
LONG ISLAND CITY, NEW YORK

Chemical	Permissible Exposure Limit	IDLH Limit	Exposure Routes	Exposure Symptoms
Cadmium	0.005 mg/m ³	9 mg/m ³	Inhalation, ingestion	Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]
Iron	10 mg/m ³	2,500 mg/m ³	Inhalation	Benign pneumoconiosis with X-ray shadows indistinguishable from fibrotic pneumoconiosis (siderosis)
Lead	0.05 mg/m ³	100 mg/m ³	Inhalation, Ingestion, Skin and/or Eye Contact	Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension
Magnesium	15 mg/m ³	750 mg/m ³	Inhalation, skin and/or eye contact	Irritate eyes, nose; metal fume fever: cough, chest pain, flu-like fever
Manganese	5 mg/m ³	500 mg/m ³	Inhalation, ingestion	Manganism; asthenia, insomnia, mental confusion; metal fume fever: dry throat, cough, chest tightness, dyspnea (breathing difficulty), rales, flu-like fever; low-back pain; vomiting; malaise (vague feeling of discomfort); lassitude (weakness, exhaustion); kidney damage

TABLE 2
SELECTED POTENTIAL CHEMICAL EXPOSURE LIMITS AND HEALTH EFFECTS
23-30 BORDEN AVENUE
LONG ISLAND CITY, NEW YORK

Chemical	Permissible Exposure Limit	IDLH Limit	Exposure Routes	Exposure Symptoms
Mercury	0.1 mg/m ³	10 mg/m ³	Inhalation, Ingestion, Skin Absorption, Skin and/or Eye Contact	Irritate eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria
Nickel	1 mg/m ³	10 mg/m ³	Inhalation, Skin Absorption, Ingestion, skin and/or eye contact	Irritate eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria
Selenium	0.2 mg/m ³	1 mg/m ³	Inhalation, ingestion, skin and/or eye contact	Irritate eyes, skin, nose, throat; visual disturbance; headache; chills, fever; dyspnea (breathing difficulty), bronchitis; metallic taste, garlic breath, gastrointestinal disturbance; dermatitis; eye, skin burns; In Animals: anemia; liver necrosis, cirrhosis; kidney, spleen damage
Silver	0.01 mg/m ³	10 mg/m ³	Inhalation, ingestion, skin and/or eye contact	Blue-gray eyes, nasal septum, throat, skin; irritation, ulceration skin; gastrointestinal disturbance
Sodium	2 mg/m ³	10 mg/m ³	Inhalation, ingestion, skin and/or eye contact	Irritate eyes, skin, mucous membrane; pneumonitis; eye, skin burns; temporary loss of hair

TABLE 2
SELECTED POTENTIAL CHEMICAL EXPOSURE LIMITS AND HEALTH EFFECTS
23-30 BORDEN AVENUE
LONG ISLAND CITY, NEW YORK

Chemical	Permissible Exposure Limit	IDLH Limit	Exposure Routes	Exposure Symptoms
Zinc	5 mg/m ³	500 mg/m ³	Inhalation	Metal fume fever: chills, muscle ache, nausea, fever, dry throat, cough; lassitude (weakness, exhaustion); metallic taste; headache; blurred vision; low back pain; vomiting; malaise (vague feeling of discomfort); chest tightness; dyspnea (breathing difficulty), rales, decreased pulmonary function

— No exposure limits listed in the NIOSH Pocket Guide to Chemical Hazards dated November 2010.

TABLE 3
HAZARD ANALYSIS
23-30 BORDEN AVENUE
LONG ISLAND CITY, NEW YORK

Task	Potential Risk	Description	Control Measure
1, 2, 3, 4, 5, 6, 7	Lifting equipment	Improper lifting/carrying of equipment and materials	Follow safe lifting and general material handling
1, 2, 3, 4, 5, 6, 7	Noise	Loud sounds caused by the machines during drilling, or excavation	Wear proper PPE (hearing protection)
1, 2, 3, 4, 5, 6, 7	Working near heavy machinery	Close proximity to drill rig and/or construction equipment	Be aware of surroundings, wear safety vest and hard hat
1, 2, 3, 4, 5, 6, 7	Slips, trips, and falls	Any number of injuries from slips, trips, and falls in carrying out these tasks	Good housekeeping at site, constant awareness and focus on the task
1, 2, 3, 4, 5, 6, 7	Inhalation of Dust	Breathing in visible dust from earthwork using drills or excavators	Wear proper PPE, monitor air for dust concentrations, use dust suppression techniques
1, 2, 3, 4, 5, 6, 7	Inhalation of Volatiles	Breathing in volatiles from earthwork using drills or excavators causing dust	Wear proper PPE, monitor air for volatile concentrations, use dust suppression techniques
1, 2, 3, 4, 6, 7	Utilities	Hitting utility lines during drilling and or excavating	Use proper mark out of underground utilities before beginning earthwork
1, 2, 3, 4, 5, 6, 7	Skin contact with contaminated material	Material falls on skin; gets in eye	Wear proper PPE; follow safe work practices
1, 2, 3, 4, 5, 6, 7	Ingestion of contaminated material	Material falls on skin; gets into mouth	Wear proper PPE; follow safe work practices
1, 2, 3, 4, 5, 6, 7	Skin and eye contact with contaminated material	Material falls on skin; gets in eye	Wear proper PPE; follow safe work practices
1, 2, 3, 4, 5, 6, 7	Heat Stress	Stress or exhaustion related to high temperatures	Hydrate and rest as needed
1, 2, 3, 4, 5, 6, 7	Cold Stress	Stress or exhaustion related to low temperatures; hypothermia	Wear proper PPE; follow safe work practices
1, 2, 3, 4, 5, 6, 7	Bites and stings	Bee stings, ticks, snake bites	Wear proper PPE, be watchful, follow safe work practices
1, 2, 3, 4, 5, 6, 7	Lacerations and abrasions	Many opportunities working with hand tools	Inspect equipment being used for sharp edges, wear proper PPE; follow safe work practices

\\Langan.com\data\PAR\data6\100766601\Project Data_Discipline\Environmental\Reports\2021-05 - RAWP\Appendix D - CHASPTables\HASP TABLE 3 - Hazard Analysis.doc

TABLE 4
INSTRUMENTATION ACTION LEVELS
23-30 BORDEN AVENUE
LONG ISLAND CITY, NEW YORK

Instrument	Action Level	Level of Protection / Action Required
PID	Background to 5 ppm	Level D/No respirator; no further action required
	> 5 ppm for > 5 minutes	1. Temporarily discontinue all activities and evaluate potential causes of the excessive readings. If these levels persist and cannot be mitigated (i.e., by slowing drilling or excavation activities), contact HSO to review conditions and determine source and appropriate response action. 2. If PID readings remain above 5 ppm, temporarily discontinue work and upgrade to Level C protection. 3. If sustained PID readings fall below 1 ppm, downgrading to Level D protection may be permitted
	> 5 ppm but < 150 ppm for > 5 minutes	Level C/ 1. Discontinue all work; all workers shall move to an area upwind of the jobsite. 2. Evaluate potential causes of the excessive readings and allow work area to vent until VOC concentrations fall below 5 ppm. 3. Level C protection will continue to be used until PID readings fall below 1 ppm.
	> 30 ppm (steady state condition) within AOC zone	Stop Work / Suppress Emissions / Evacuate and re-evaluate.
	> 150 ppm	Evacuate the work area

Total Dust Aerosol Monitor	> 0.100 mg/m ³ above BKD (steady state condition) at perimeter of AOC zone for 15-minutes or visible dust.	Stop Work / Implement dust control / Continue dust monitoring if dust levels are less than 150 mg/m ³
	< 0.150 mg/m ³ above BKD (following dust suppression measures)	Stop Work / implement dust control, continue work once levels are <150 mg/m ³
	>5 mg/m ³	Level C

Notes:

1. 1 ppm level based on OSHA Permissible Exposure Limit (PEL) for benzene.
2. 5 ppm level based on OSHA Short Term Exposure Limit (STEL) maximum exposure for vinyl chloride for any 15 minute period.
3. 150 ppm level based on NIOSH Immediately Dangerous to Life and Health (IDLH) for tetrachloroethylene

TABLE 5
PERSONAL PROTECTIVE EQUIPMENT
23-30 BORDEN AVENUE
LONG ISLAND CITY, NEW YORK

Respiratory Protection:

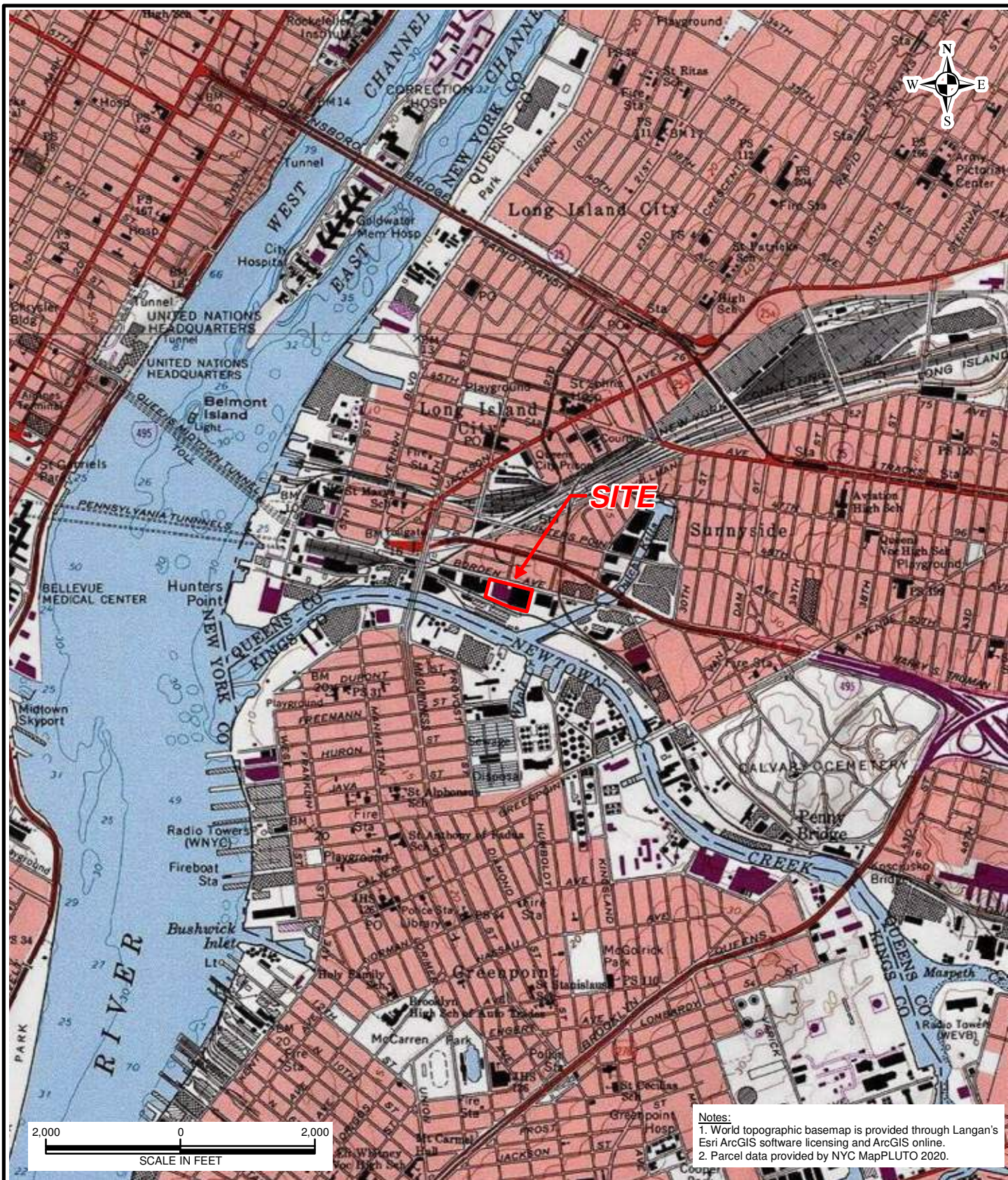
Level D:	No respirator required.
Level C:	Half-face, Air Purifying Respirator (APR) with combination HEPA (dusts, fumes, aerosols) and organic vapor cartridges. The respirator will be NIOSH-approved.
Level C - supplemental by task	Fullface, Air Purifying Respirator (APR) with combination HEPA (dusts, fumes, aerosols), acid gas, organic vapor cartridges. The respirator will be NIOSH-approved.

Personal Protective Clothing:

Level D:	Hard-hat, traffic vest (if working on or adjacent to the roadway), long sleeve work shirt & work pants of natural fibers, safety glasses or goggles, steel-toed boots, hearing protection (if needed), nitril inner gloves and leather outer gloves.
Level D - supplemental PPE by task	Tyvek disposal suit
Level C:	Chemically resistant outer boots and Chemical resistant Tyvek disposal suite.

\\LANGAN.COM\DATA\PAR\DATA6\100766601\PROJECT DATA\DISCIPLINE\ENVIRONMENTAL\REPORTS\2020 - RAWP\APPENDIX D - CHASP\TABLES\HASP TABLE 5 - PPE.DOC

FIGURES



LANGAN

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Langan Engineering & Environmental Services, Inc.
 Langan Engineering, Environmental, Surveying,
 Landscape Architecture and Geology, D.P.C.
 Langan International LLC
 Collectively known as Langan

NJ CERTIFICATE OF AUTHORIZATION No. 24GA27996400

Project

23-30 BORDEN AVENUE

BLOCK No. 68, LOT No. 38

LONG ISLAND CITY

QUEENS COUNTY

NEW YORK

Drawing Title

USGS SITE LOCATION MAP

Project No.

100766601

Date

10/20/2020

Scale

1"=2,000'

Drawn By

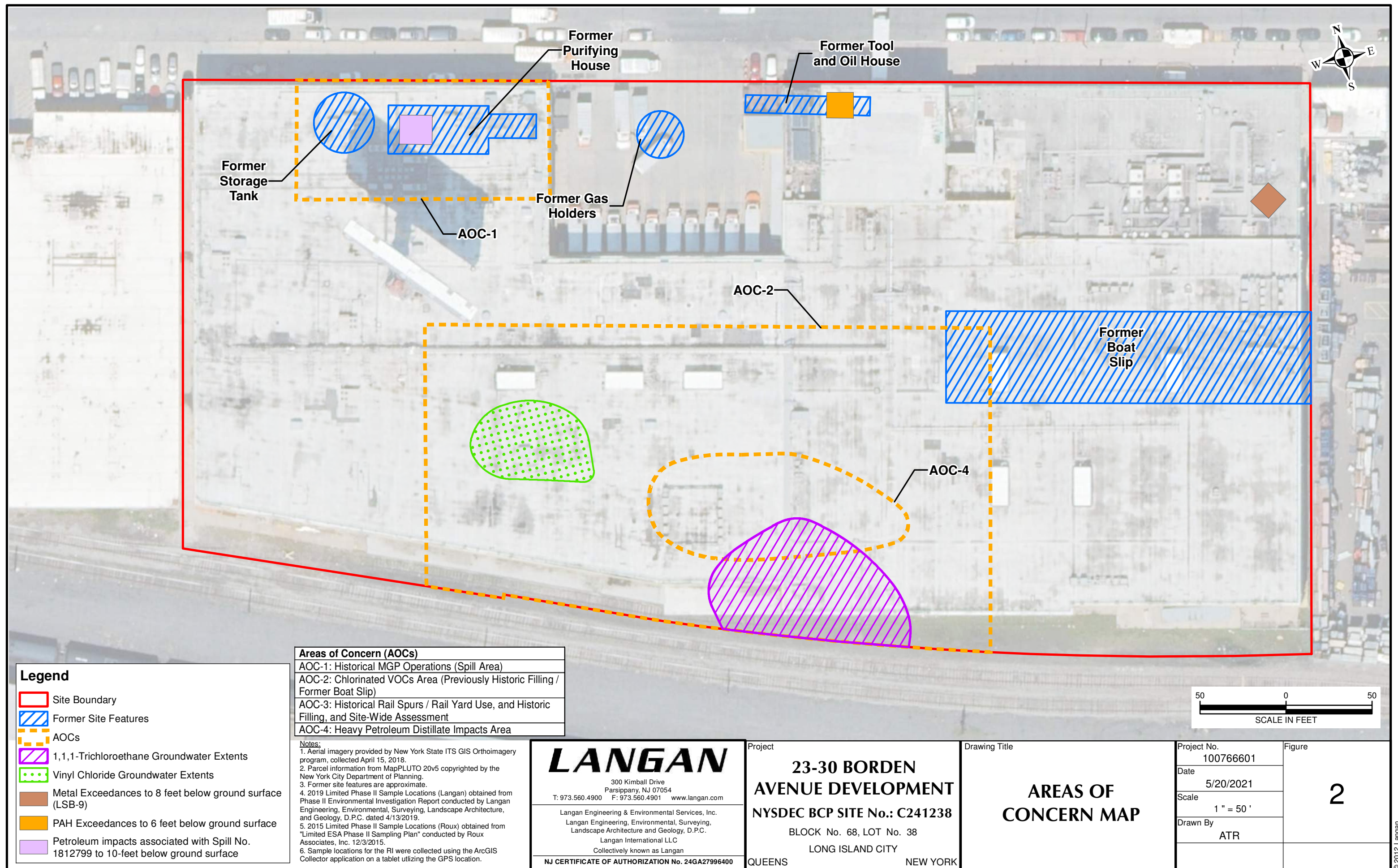
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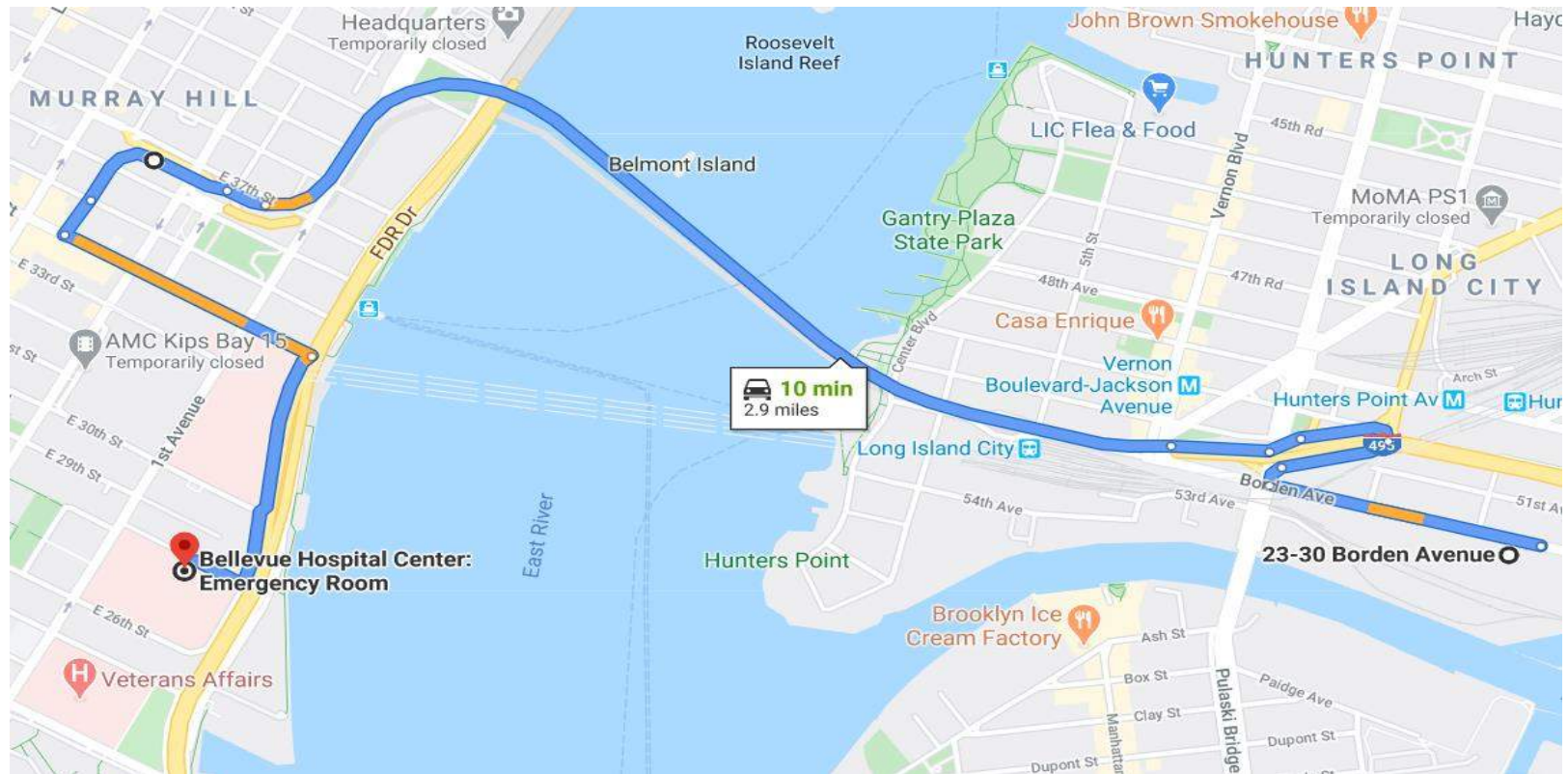
Last Revised

10/29/2020

Figure

1





Emergency Route to Bellevue Hospital Center: Emergency Room (Phone # (212) 562-8052) :

- 1 Start traveling west on Borden Avenue
- 2 Turn right onto the Interstate 495 East/Long Island Expressway ramp to Eastern Long Island Riverhead
- 3 Use the left lane to continue toward I-495 West
- 4 Sharp left onto the ramp to I-495 West
- 5 Keep left and merge onto I-495 West
- 6 Continue onto Queens Midtown Tunnel
- 7 Use the left lane to continue toward Downtown
- 8 Turn left onto East 35th Street
- 9 Use any lane to turn right at the 1st cross street onto 2nd Ave
- 10 Turn left onto East 30th Street
- 11 Slight right onto FDR Drive
- 12 Turn right onto East 28th Street
- 13 Bellevue Hospital Center: Emergency Room will be on the left

MAP REFERENCE: Google Maps

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Project

**23-30 BORDEN AVENUE
EMERGENCY HOSPITAL ROUTE MAP**

Queens

New York

Project
100766601

DATE
4/13/2020

SCALE
NTS

FIGURE NO.
3

ATTACHMENT A

Tailgate Safety Briefing Form

Tailgate Safety Briefing Form

Health & Safety

LANGAN

Document #: HSE-HASP-TSB-FRM-01

Version #: 01

Date: _____

Time: _____

Leader: _____

Location: _____

Work Task: _____

SAFETY TOPICS (*provide some detail of discussion points*)

Chemical Exposure Hazards and Control: _____

Physical Hazards and Control: _____

Air Monitoring: _____

PPE: _____

Communications: _____

Safe Work Practices: _____

Emergency Response: _____

Hospital/Medical Center Location: _____

Phone Nos.: _____

Other: _____

FOR FOLLOW-UP (the issues, responsibilities, due dates, etc.)

ATTENDEES

PRINT NAME	COMPANY	SIGNATURE

ATTACHMENT B

Field Procedures Change Authorization Form

ATTACHMENT B

FIELD PROCEDURES CHANGE AUTHORIZATION FORM

Section to be changed: _____

Duration of Authorization Requested

Date: _____

_____ Today only

_____ Duration of Task

_____ Other _____

Description of Procedures Modification:

Justification:

Person Requesting Change

Verbal Authorization Received From:

Name

Name

Time

Title

Title

Signature

Approvals:

ATTACHMENT C

Unsafe Conditions and Practices Form

ATTACHMENT C
UNSAFE CONDITIONS AND PRACTICES FORM

DESCRIPTION OF CIRCUMSTANCES REGARDING UNSAFE CONDITION OR PRACTICE:

IS THIS CONDITION EXISTING OR POTENTIAL? _____

REPORTED TO: _____

REPORTED BY: _____

DATE REPORTED: _____

COMMENTS: _____

ATTACHMENT D

Calibration Log

ATTACHMENT D

PROJECT: _____

DATE: _____

CALIBRATION LOG

Time	Inst Type	Inst #	Media	Initial Reading	Span #	Calib Reading	Performed By:

ATTACHMENT E

Emergency Notification Numbers

ATTACHMENT E

EMERGENCY NOTIFICATION NUMBERS

The following list provides names and telephone numbers for emergency contact personnel.

ORGANIZATION	CONTACT	TELEPHONE
New York City Police		911
New York City Fire		911
Bellevue Hospital Center: Emergency Room		212-562-8052
WorkCare (Non-Emergency Medical Treatment)		1-888-449-7787
Langan Incident / Injury Hotline		973-560-4699
Langan Project Manager	Amanda Forsburg	973-560-4574
National Response Center		800-424-8802
Center for Disease Control		404-488-4100
CHEMTREC		800-424-9300
TSCA HOTLINE		202-554-1404
RCRA HOTLINE		800-424-9346
CDC	(DAY) (NIGHT)	404-452-4100 404-329-2888
BUREAU OF ALCOHOL, TOBACCO & FIREARMS		800-424-9555 202-566-7777
NATIONAL RESPONSE CENTER		800-424-8802
PESTICIDE INFORMATION SERVICE		800-424-9346
BUREAU OF EXPLOSIVES, A.A. RAILWAYS		202-835-9500
FEDERAL EXPRESS - HAZARDOUS MATERIAL INFO		901-922-1666

ATTACHMENT F

Accident / Incident Report Form

ATTACHMENT F

INCIDENT REPORT

LANGAN EMPLOYEE EXPOSURE/INJURY INCIDENT REPORT (Submit a Separate Report for Each Employee and/or Incident)

Date: _____

Employee's Name: _____ Employee No: _____

Sex: M _____ F _____ Age: _____

Region: _____ Location: _____

Project: _____ Project No: _____

Incident: _____

Type: Possible Exposure _____ Exposure _____ Physical Injury _____

Location: _____

Date of Incident: _____ Time of Incident: _____

Date of Report Incident: _____

Person(s) to Whom Incident was Reported: _____

Weather Conditions During Incident: Temperature _____ Humidity _____

Wind Speed and Direction: _____ Cloud Cover: _____

Clear: _____ Precipitation: _____

Materials Potentially Encountered: _____

Chemical (give name of description - liquid, solid, gas, vapor, fume, mist):

Radiological: _____

Other: _____

Nature of the Exposure/Injury: (State the nature of the exposure/injury in detail and list the parts of the body affected. Attach extra sheets if necessary).

Did you receive medical care? Yes _____ No _____ If so, when _____

Where? On-Site _____ Off-Site _____

By Whom: Name of Paramedic: _____

Name of Physician: _____

Other: _____

If Off-Site, name facility (hospital, clinic, etc): _____

Length of stay at the facility? _____

Was the Site Safety Officer contacted? Yes _____ No _____ When? _____

Was the Corporate Health and Safety Officer contacted? Yes _____ No _____

If so, who was the contact? _____

Did the exposure/injury result in permanent disability? Yes _____ No _____

If so, explain: _____

Has the employee returned to work? Yes _____ No _____

List the names of other persons affected during this incident:

List the names of persons who witnessed the exposure/injury incident:

Possible cause of the exposure/injury incident: _____

What was the name and title of the field team leader or immediate supervisor at the site of the incident?

Was the operation being conducted under an established Health and Safety Plan?

Yes _____ No _____ If yes, attach a copy. If no, explain

Describe protective equipment and clothing used by the employee:

Did any limitations in safety equipment or protective clothing contribute to or affect exposure? If so, explain:

What was the employee doing when the exposure/injury occurred? (Describe briefly as Site Reconnaissance, Site Characterization, or Sampling, etc.):

Where exactly on site or off site did the exposure/injury occur?

How did the exposure/injury occur? (Describe fully what factors led up to and/or contributed to the incident):

Name of person(s) initiating report, job title, phone number:

Employee Signature

Date

Site Safety Officer Signature or Field Team Leader Signature

Date

ATTACHMENT G

**Safety Data Sheets
(SDS)**



Patented *Injection Ready* 60% SRS[®]-SD Small Droplet Emulsified Vegetable Oil (EVO) Substrate for Maximum Radius of Influence

United States Patent #RE40,448

SAFETY DATA SHEET

1. Product Identification

Synonyms:	60% Small Droplet Slow Release Substrate (SRS [®] -SD) Emulsified Vegetable Oil Substrate (EVO)
Recommended Use:	Treatment of groundwater contaminated with chlorinated solvents and other anaerobically degradable compounds.
Supplier:	Terra Systems, Inc. 130 Hickman Road, Suite 1 Claymont, Delaware 19703 Telephone (302) 798-9553 Fax (302) 798-9554 www.terrasystems.net

2. Hazards Identification

Emergency Overview

Caution:	May cause eye irritation.
Health Rating:	1 - Slight
Flammability Rating:	1 - Slight
Reactivity Rating:	1 - Slight
Contact Rating:	1 - Slight
Protective Equipment:	Goggles; Proper Gloves
Storage Color Code:	Green (General Storage)
Potential Health Effects	
Inhalation:	Not expected to be a health hazard. If heated, may produce vapors or mists that irritate the mucous membranes and cause irritation, dizziness, and nausea. Remove to fresh air.
Ingestion:	Not expected to be a health hazard via ingestion. Large doses may produce abdominal spasms or diarrhea.
Skin Contact:	No adverse effects expected. May cause irritation or sensitization in sensitive individuals.
Eye Contact:	May cause mild irritation, possible reddening.
Chronic Exposure:	No information found.
Aggravation of Pre-existing Conditions:	No information found.



3. Composition/Information on Ingredients

Ingredient	Synonyms	CAS #	Percent	Hazardous
Soy bean oil	Soya oil	8001-22-7	60%	No
Emulsifiers and proprietary nutrient package containing nitrogen, phosphorus and vitamin B ₁₂		Mixture	7.5 - 10%	No
Sodium lactate	2-hydroxypropionic acid sodium salt	72-17-3	5.5%	Yes
Water		7732-18-5	Difference	No

The emulsifiers and nutrient package mixture is a trade secret and consists of ingredients of unknown acute toxicity.

4. First Aid Measures

Inhalation:	Not expected to require first aid measures. Remove to fresh air. Get medical attention for any breathing difficulty.
Ingestion:	If large amounts were swallowed, give water to drink and get medical advice.
Skin Contact:	Not expected to require first aid measures. Wash exposed area with soap and water. Get medical advice if irritation develops.
Eye Contact:	Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

5. Fire Fighting Measures

Fire:	Flash point: >200 C (>392 F). Not considered to be a fire hazard. Isolate from heat and open flame.
Explosion:	Not considered to be an explosion hazard. Closed containers may explode if exposed to extreme heat.
Fire Extinguishing Media:	Dry chemical, foam, or carbon dioxide. Water spray may be ineffective on fire but can protect fire-fighters and cool closed containers. Use fog nozzles if water is used.
Special Information:	In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Clean-up personnel may require protective clothing. Absorb in sand, paper towels, "Oil Dry", or other inert material. Scoop up and containerize for disposal. Flush trace residues to sewer with soap and water. Containerized waste may be sent to an approved waste disposal facility.



7. Handling and Storage

Store in a cool, dry, ventilated area. Do not store in sunlight or above 32 C (90 F). Keep container tightly closed and upright when not in use to prevent leakage. Observe all warnings and precautions listed for the product. Protect against physical damage.

If container begins to bulge, open cap slowly to release carbon dioxide from biological activity on the SRS-SD and call TSI.

Containers of this material are not hazardous when empty since they do not contain vapors or harmful substances; if drum or tote is observed to bulge, keep cap off as pressurization can occur on empty container with caps in place unless container is thoroughly rinsed.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:	None established.
Ventilation System:	Not expected to require any special ventilation.
Personal Respirators (NIOSH Approved):	Not expected to require personal respirator usage.
Skin Protection:	Wear protective gloves and clean body-covering clothing.
Eye Protection:	Use chemical safety goggles and/or a full-face shield where splashing is possible. Provide readily accessible eye wash stations and safety showers.
Slips, Trips, and Falls:	Material is slippery when spilled. Clean up with sand, paper towels, "Oil Dry", or other inert material.

9. Physical and Chemical Properties

Appearance:	White liquid.
Odor:	Vegetable oil.
Solubility:	Miscible in water.
Specific Gravity (water=1):	0.95-0.98. 8.09 pounds per gallon.
pH:	6-7 (40% aqueous solution)
% Volatiles by volume @ 21C (70F):	Negligible.
Boiling Point:	≥ 100C (≥ 212F)
Melting Point:	No information found.
Flash Point (F):	No information found.
Autoignition Temperature:	No information found.
Decomposition Temperature:	No information found.
Vapor Density (Air=1):	No information found.
Vapor Pressure (mm Hg):	< 1.0 @ 20C (68F).
Evaporation Rate (BuAc=1):	No information found.
Viscosity @23 C (73 F):	213 centipoises (1.2 centipoises diluted 1:10)
Partition Coefficient (octanol/water):	No information found.



10. Stability and Reactivity

Stability:	Stable under ordinary conditions of use and storage.
Reactivity:	Not reactive under ordinary conditions.
Hazardous Decomposition Products:	Carbon dioxide and carbon monoxide may form when heated to decomposition.
Hazardous Polymerization:	Will not occur.
Incompatibilities:	Strong oxidizers, acids.
Conditions to Avoid:	Incompatibles. Isolate from heat and open flame.

11. Toxicological Information

Soybean Oil:	No information found on toxicology. It is not a carcinogen listed by IARC, NTP, NIOSH, OSHA, or ACGIH.
Emulsifier/Nutrient Mixture:	No information found on toxicology. It is not a carcinogen listed by IARC, NTP, NIOSH, OSHA, or ACGIH.
Sodium Lactate:	Oral rat LD50: 2,000 mg/kg. 100 mg caused mild irritation to rabbit eye in Draize test. This compound is not listed as a carcinogen by IARC, NTP, NIOSH, OSHA, or ACGIH.
SRS-SD:	The toxicity of the mixture has not been measured.

12. Ecological Information

Environmental Fate:	No information found.
Environmental Toxicity:	No information found.
Degradability:	This product is completely biodegradable under both aerobic and anaerobic conditions.
Soil Mobility:	This compound will move with groundwater until the adsorbed onto the soil. Degradation products may be mobile.
Bioaccumulation Potential:	No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information



OSHA STATUS: This product is not hazardous under the criteria of the Federal OSHA hazard Communication Standard 29 CFR 1910.1200. However, thermal processing and decomposition fumes from this product may be hazardous as noted in Section 10.

TSCA STATUS: No component of this product is listed on the TSCA inventory.

CERCLA (Comprehensive Response Compensation, and Liability Act): Not reportable.

SARA TITLE III (Superfund Amendments and Reauthorization Act)

Section 312 Extremely Hazardous Substances: None

Section 311/312 Hazard Categories: Non-hazardous Under Section 311/312

Section 313 Toxic Chemicals: None

RCRA STATUS: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

CALIFORNIA PROPOSITION 65: The following statement is made in order to comply with the California safe Drinking Water and Toxic Enforcement Act of 1986. The product contains no chemicals known to the State of California to cause cancer.

16. Other Information

NFPA Ratings:

Health: **1** Flammability: **1** Reactivity: **1**

Date Prepared:

September 11, 2019

Revision Information:

SDS Section(s) changed since last revision of document include: Updated Section 3 Composition/Information on Ingredients.

Disclaimer:

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DAMAGES RESULTING FROM USE OF OR RELIANCE
UPON THIS INFORMATION.

Prepared by:
Phone Number:

Terra Systems, Inc.
(302) 798-9553 (U.S.A.)



NutriPlusTM

Nutrient Package

SAFETY DATA SHEET

Effective Date: 04/01/2021

1. Product Identification

Synonyms: Nutrient Package

Recommended Use: Treatment of groundwater contaminated with chlorinated solvents and other anaerobically degradable compounds.

Supplier: Terra Systems, Inc.
130 Hickman Road, Suite 1
Claymont, Delaware 19703
Telephone (302) 798-9553
Fax (302) 798-9554
www.terrasystems.net

2. Hazards Identification

Emergency Overview

Caution: May cause eye irritation.

Health Rating: 1 - Slight

Flammability Rating: 0 - None

Reactivity Rating: 0 - None

Contact Rating: 1 - Slight

Protective Equipment: Goggles; Proper Gloves

Storage Color Code: Orange (General Storage)

Potential Health Effects

Inhalation: Not expected to be a health hazard.

Ingestion: Not expected to be a health hazard via ingestion.

Skin Contact: Possible irritant and allergen.

Eye Contact: May cause irritation, possible reddening.

Chronic Exposure: No information found. No adverse effects expected.

Aggravation of Pre-existing Conditions: No information found.

130 Hickman Road – Suite 1 – Claymont – Delaware – 19703
For More Information Call Michael Free at 302-798-9553 or Email: mfree@terrasystems.net





3. Composition/Information on Ingredients

Ingredient	CAS#	Percent	Hazardous
Yeast Extract	8013-01-2	50-60	
Vitamin B ₁₂	68-19-9	<1	No
Diammonium Phosphate	7783-28-0	2.5-9	No
Water	7732-18-5	30-46.5	No

Molecular Weight: No available
Chemical Formula: Not available

4. First Aid Measures

Inhalation: Not expected to require first aid measures. Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion: If large amounts were swallowed, give water to drink and get medical advice.

Skin Contact: Not expected to require first aid measures. Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

5. Fire Fighting Measures

Fire: Not considered to be a fire hazard.

Explosion: Not considered to be an explosion hazard.

Fire Extinguishing Media: Use any means suitable for extinguishing surrounding fire.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Clean-up personnel may require protective clothing. Absorb in sand, paper towels, "Oil Dry", or other inert material. Scoop up and containerize for disposal. Flush trace residues to sewer with soap and water. Containerized waste may be sent to an approved waste disposal facility.

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For More Information Call Michael Free at 302-798-9553 or Email: mfree@terrasystems.net





7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Avoid long storage times. Containers of this material may be hazardous when empty since they do retain product residues (vapors, liquid). Observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:	None established.
Ventilation System:	Not expected to require any special ventilation.
Personal Respirators (NIOSH Approved):	Not expected to require personal respirator usage.
Skin Protection:	Wear protective gloves and clean body-covering clothing.
Eye Protection:	Use chemical safety goggles and/or a full-face shield where splashing is possible. Provide readily accessible eye wash stations and safety showers.

9. Physical and Chemical Properties

Appearance:	Yellow, orange, or brown liquid
Odor:	Yeast
Solubility:	Partially soluble in water.
Specific Gravity (water=1):	1.22. (10.17 pounds per gallon)
pH:	5.0-8.0
% Volatiles by volume @ 21C (70F):	No information found.
Boiling Point:	105 C (221 F)
Melting Point:	No information found.
Flash Point (F):	>500 C (>932 F)
Autoignition Temperature:	No information found.
Decomposition Temperature:	No information found.
Vapor Density (Air=1):	No information found.
Vapor Pressure (mm Hg):	No information found.
Evaporation Rate (BuAc=1):	No information found.
Viscosity @23 C (73 F):	No information found.
Partition Coefficient (octanol/water):	No information found.

10. Stability and Reactivity

Stability:	Stable under ordinary conditions of use and storage.
Reactivity:	Not reactive under ordinary conditions.

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Hazardous Decomposition

Products: Carbon dioxide and carbon monoxide may form when heated to decomposition.

Hazardous Polymerization: Will not occur.

Incompatibilities: Strong oxidizers, acids

Conditions to Avoid: Incompatibles. Isolate from heat and open flame.

11. Toxicological Information

No information found.

12. Ecological Information

Environmental Fate: Mobile with water and readily biodegradable.

Environmental Toxicity: Ecological injuries are not known or expected under normal use.

Degradability: This product is completely biodegradable under both aerobic and anaerobic conditions.

Soil Mobility: This compound will move with groundwater until the adsorbed onto the soil. Degradation products may be mobile.

Bioaccumulation Potential: No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Non-hazardous - not regulated.

15. Regulatory Information

This product does not meet the definition of a hazardous material given in the U. S. Occupational Safety and Health Administration's Hazard Communication Standard.

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For More Information Call Michael Free at 302-798-9553 or Email: mfree@terrasystems.net





16. Other Information

NFPA Ratings:

Health: **1** Flammability: **0** Reactivity: **0**

Date Prepared:

April 1, 2021

Revision Information:

SDS Section(s) changed since last revision of document include: Dry yeast substituted for liquid yeast extract.

Disclaimer:

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Prepared by:

Terra Systems, Inc.

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1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Ferox Target zero valent iron powder

Brand : Hepure

CAS-No. : 7439-89-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Environmental remediation, water treatment, various

1.3 Details of the supplier of the safety data sheet

Company : Hepure Technologies, Inc.
63 Main Street, Suite 203B
Flemington, NJ 08822

Telephone : 877-727-4776

1.4 Emergency telephone number

Emergency Phone # : Chemtrec 800-424-9300 CCN234339

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Not classified as hazardous

2.2 GHS Label elements, including precautionary statements

Signal Word: not applicable
Hazard Statements: not applicable
Precautionary Statements: not applicable

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS – none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula: Fe
Molecular Weight: 55.85 g/mol
CAS-No.: 7439-89-6
EC-No.: 231-096-4

Carbon:	1.5 to 2%
Sulfur:	0.1%
Silicon:	1 to 1.5%
Phosphorus	0.1%
Iron:	Balance

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

No data available

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use Class D or other metal extinguishing agent.

5.2 Special hazards arising from the substance or mixture

These materials, as coarse particles, are non-flammable and do not react with water or other materials used for extinguishing fire. Fine metal dust may pose a risk of fire or explosion if accumulated, mixed and confined with an ignition source. When handling fine particles generated from this material, avoid creating dust clouds and ignition sources. May release iron oxide fume if involved in a fire.

5.3 Advice for firefighters

Wear self-contained breathing apparatus for fire fighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Store under inert gas. Moisture sensitive. Keep in a dry place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Impermeable gloves, protective work clothing as necessary.

Respiratory Protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Form: powder
b) Odor	no data available
c) Odor Threshold	no data available
d) pH	no data available
e) Melting point/freezing point	Melting point/range: 1,535 °C (2,795 °F) - lit.
f) Initial boiling point and boiling range	2,750 °C (4,982 °F) - lit.
g) Flash point	no data available

h)	Evaporation rate	no data available
i)	Flammability (solid, gas)	not flammable as a coarse particle; fine metal dust may pose a risk of fire or explosion if accumulated, mixed and confined with an ignition source
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapor pressure	no data available
l)	Vapor density	no data available
m)	Relative density	7.86 g/cm ³ at 25 °C (77 °F)
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	no data
p)	Auto-ignition temperature	available no
q)	Decomposition temperature	data available
		no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

9.2 Other safety information

Bulk density	2.3 gm/cm ³

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials

Acids, Oxygen, Strong oxidizing agents, Halogens, Phosphorus

10.6 Hazardous decomposition products

Other decomposition products - no data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - rat - 30,000 mg/kg

Remarks: Nutritional and Gross Metabolic: Weight loss or decreased weight

gain. Inhalation: no data available

Dermal: no data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a

carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data

available No

data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: NO4565500

Overdose of iron compounds may have a corrosive effect on the gastrointestinal mucosa and be followed by necrosis, perforation, and stricture formation. Several hours may elapse before symptoms that can include epigastric pain, diarrhea, vomiting, nausea, and hematemesis occur. After apparent recovery a person may experience metabolic acidosis, convulsions, and coma hours or days later. Further complications may develop leading to acute liver necrosis that can result in death due to hepatic coma. Long term inhalation exposure to iron (oxide fume or dust) can cause siderosis. Siderosis is considered to be a benign pneumoconiosis and does not normally cause significant physiologic impairment. Siderosis can be observed on x-rays with the lungs having a mottled appearance.

12. ECOLOGICAL INFORMATION

Non-hazardous

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Product: Dispose of in accordance with Federal, State and Local regulations.

Packaging: Dispose of in accordance with Federal, State and Local regulations.

14. TRANSPORT INFORMATION

Shipping Regulations:	Not regulated
UN Number:	N/A
UN Proper Shipping Name:	N/A
Transport Hazard Class:	N/A
Packing Group:	N/A
Marine Pollutant:	No

15. REGULATORY INFORMATION

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

CAS-No.
7439-89-6

Revision Date

Iron, Powder

New Jersey Right To Know Components

CAS-No.
7439-89-6

Revision Date

Iron, Powder

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information

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Version: 2.3 Revision Date: 6/23/2016



Diammonium Phosphate

SAFETY DATA SHEET

Effective Date: 01-01-2018

1. Product Identification

Synonyms: Diammonium Phosphate, Ammonium Phosphate Dibasic
Recommended Use: Treatment of groundwater contaminated with chlorinated solvents and other anaerobically degradable compounds.
Supplier: Terra Systems, Inc.
130 Hickman Road, Suite 1
Claymont, Delaware 19703
Telephone (302) 798-9553
Fax (302) 798-9554
www.terrasystems.net

2. Hazards Identification

Emergency Overview

Caution: May cause eye and skin irritation. Acute aquatic toxicity.
Health Rating: 2 - Moderate
Flammability Rating: 0 - None
Reactivity Rating: 0 - None
Contact Rating: 2 - Moderate
Protective Equipment: Goggles; Proper Gloves
Storage Color Code: Orange (General Storage)
Potential Health Effects
Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion: May be harmful if swallowed.
Skin Contact: Causes skin irritation.
Eye Contact: Causes eye irritation.
Chronic Exposure: No information found No adverse effects expected
Aggravation of Pre-existing Conditions: No information found



3. Composition/Information on Ingredients

Ingredient	CAS#	Percent	Hazardous
Diammonium Phosphate	7783-28-0	100	Yes

Molecular Weight: 132.1
Chemical Formula: (NH₄)₂PO₄

4. First Aid Measures

Inhalation: Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion: If swallowed, give water to rinse mouth and get medical advice.

Skin Contact: Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

5. Fire Fighting Measures

Fire: Not considered to be a fire hazard.

Explosion: Not considered to be an explosion hazard.

Fire Extinguishing Media: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

Hazardous Combustion Products: Hazardous decomposition products formed under fire conditions – nitrogen oxides and phosphorus oxides.

6. Accidental Release Measures

Clean-up personnel should wear protective clothing and gloves. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Scoop up and containerize for disposal. Discharge into environment should be avoided. Containerized waste may be sent to an approved waste disposal facility.



7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Avoid long storage times. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide adequate exhaust ventilation where dust is formed. Containers of this material may be hazardous when empty since they do retain product residues (vapors, liquid). Observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:	None established.
Ventilation System:	Not expected to require any special ventilation.
Personal Respirators (NIOSH Approved):	For nuisance exposures, use type P95 particle respirator. For higher level protection use type OV/AG/P99 respirator cartridges.
Skin Protection:	Wear protective nitrile rubber gloves (at least 0.11 mm thick) and clean impervious body-covering clothing.
Eye Protection:	Use chemical safety goggles and/or a full face shield where splashing is possible. Provide readily accessible eye wash stations and safety showers.

9. Physical and Chemical Properties

Appearance:	White crystalline.
Odor:	Ammonia.
Solubility:	About 132 g/L at 20 C (68 F)
Specific Gravity (water=1):	1.62 g/cm ³
pH:	7.5-9.0 at 132 g/L at 25 C (77 F)
% Volatiles by volume @ 21C (70F):	No information found.
Boiling Point:	No data available
Melting Point:	155 C (311 F)
Flash Point (F):	No information found.
Autoignition Temperature:	No information found
Decomposition Temperature:	No information found.
Vapor Density (Air=1):	No information found.
Vapor Pressure (mm Hg):	No information found.
Evaporation Rate (BuAc=1):	No information found.
Viscosity @23 C (73 F):	No information found.
Partition Coefficient (octanol/water):	No information found



10. Stability and Reactivity

Stability:	Stable under ordinary conditions of use and storage.
Reactivity:	Not reactive under ordinary conditions.
Hazardous Decomposition Products:	Nitrogen oxides and oxides of phosphorus may form when heated to decomposition.
Hazardous Polymerization:	Will not occur.
Incompatibilities:	Avoid strong oxidizing agents, strong acids, strong bases, and magnesium.
Conditions to Avoid:	Incompatibles. Isolate from heat and open flame.

11. Toxicological Information

Acute Toxicity:	Oral LD50 rat 6,500 mg/lg Inhalation LC50 – no data available Dermal LD50 – rabbit 7,950 mg/kg
Chronic Toxicity:	Carcinogenicity – no component of this product present at levels greater than 0.1% is identified as probable, possible, or confirmed human carcinogen by IARC, ACGIH, NTP, or OSHA. Reproductive toxicity – no data available. Teratogenicity – no data available.

12. Ecological Information

Environmental Fate:	Mobile with water and biodegradable.
Environmental Toxicity:	Toxic to fish. LC50 <i>Oncorhynchus mykiss</i> (rainbow trout) 26.5 mg/L – 96 hr. LC50 <i>Pimephales promelas</i> (fathead minnow) 33 mg/L -96 hr.
Degradability:	No information is available.
Soil Mobility:	No information is available.
Bioaccumulation Potential:	No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use, or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.



14. Transport Information

Non-hazardous - not regulated.

15. Regulatory Information

This product is considered an irritant by the U. S. Occupational Safety and Health Administration's Hazard Communication Standard.

16. Other Information

NFPA Ratings:

Health: **2** Flammability: **0** Reactivity: **0**

Date Prepared:

January 1, 2018

Revision Information:

SDS Section(s) changed since last revision of document include: None.

Disclaimer:

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Prepared by:

Terra Systems, Inc.

Phone Number:

(302) 798-9553 (U.S.A.)



TERRA SYSTEMS, INC DECHLORINATING BIOAUGMENTATION CULTURE (TSI-DC) SAFETY DATA SHEET

1. Product Identification

Synonyms: *Dehalococcoides* or DHC Microbial Consortium (TSI-DC)
Recommended Use: Bioremediation of groundwater and soil contaminated with chlorinated solvents such as tetrachloroethene and trichloroethene.
Supplier: Terra Systems, Inc.
130 Hickman Road, Suite 1
Claymont, Delaware 19703
Telephone (302) 798-9553
Fax (302) 798-9554
www.terrasystems.net

2. Hazards Identification

The available data indicates no known hazards associated with exposure to this product. Nevertheless, individuals who are allergic to enzymes or other related proteins should avoid exposure and handling. Health effects associated with exposure to similar organisms are listed below.

Emergency Overview

Caution: May cause eye irritation or discomfort if ingested or inhaled or allergic reaction to sensitive individuals.

Health Rating: 1 - Slight

Flammability Rating: 0 - None

Reactivity Rating: 0 - None

Contact Rating: 1 - Slight

Protective Equipment: Goggles; Proper Gloves

Storage Color Code: Green (General Storage)

Potential Health Effects

Inhalation: Not expected to be a health hazard. Hypersensitive individuals may experience breathing difficulties after inhalation of aerosols.

Ingestion: Not expected to be a health hazard via ingestion. Ingestion of large quantities may result in abdominal discomfort including nausea, vomiting, cramps, diarrhea, and fever.

Skin Contact: No adverse effects expected. May cause irritation or sensitization in sensitive individuals upon prolonged contact.

Eye Contact: May cause mild irritation, possible reddening unless immediately rinsed.



Chronic Exposure: No information found.
Aggravation of Pre-existing Conditions: No information found.

3. Composition/Information on Ingredients

Ingredient	Synonyms	CAS #	Percent	Hazardous
Non-hazardous ingredients	DHC	Not applicable	100%	No

4. First Aid Measures

Inhalation: Not expected to require first aid measures. Remove to fresh air. Get medical attention for any breathing difficulty or if allergic symptoms develop.

Ingestion: Thoroughly rinse mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Get immediate medical attention. Never give anything by mouth to an unconscious or convulsing person.

Skin Contact: Not expected to require first aid measures. Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

Note to Physicians: All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this material may have occurred.

5. Fire Fighting Measures

Fire: Non-flammable. Flash point and flammable limits are not available.

Explosion: Not considered to be an explosion hazard.

Fire Extinguishing Media: Dry chemical, foam, carbon dioxide, or water.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Clean-up personnel may require protective clothing and avoid skin contact. Absorb in sand, paper towels, or other inert material. Scoop up and containerize for disposal. Flush trace residues to sewer with soap and water. Containerized waste may be sent to an approved waste disposal facility. After clean-up, disinfect all cleaning materials and storage containers that come in contact with the spilled liquid.



7. Handling and Storage

Avoid breathing breathe aerosol. Avoid contact with skin. Use personal protective equipment recommended in Section 8. Keep containers tightly closed in a cool, well-ventilated area. The DHC microbial consortium (TSI-DC) can be supplied in stainless steel kegs designed for maximum working pressure of 130 psi and equipped with pressure relief valves. The kegs are pressurized with nitrogen gas up to the pressure of 15 psi. Do not exceed pressure of 15 psi during transfer of DHC microbial consortium (TSI-DC) from kegs. Don't open keg if content of the keg is under pressure. DHC microbial consortium (TSI-DC) may be stored for up to 3 weeks at temperature 2-4°C without aeration. Avoid freezing.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:	None established.
Ventilation System:	Not expected to require any special ventilation. Provide adequate ventilation to remove odors.
Personal Respirators (NIOSH Approved):	Not expected to require personal respirator usage. If aerosols might be generated, use N95 respirator.
Skin Protection:	Wear protective rubber, nitrile, or vinyl gloves and clean body-covering clothing.
Eye Protection:	Use chemical safety goggles and/or a full face shield where splashing is possible. Provide readily accessible eye wash stations and safety showers.

9. Physical and Chemical Properties

Appearance:	Light greenish, murky liquid.
Odor:	Musty.
Solubility:	Soluble in water.
Specific Gravity (water=1):	1.0. 8.34 pounds per gallon.
pH:	6-8
% Volatiles by volume	
@ 21C (70F):	Negligible.
Boiling Point:	100C (212F)
Melting Point:	0C (32F)
Flash Point (F):	No information found.
Autoignition Temperature:	No information found.
Decomposition Temperature:	No information found.
Vapor Density (Air=1):	No information found.
Vapor Pressure (mm Hg):	24 mm @ 25C (77F).
Evaporation Rate (BuAc=1):	No information found.
Viscosity @23 C (73 F):	1 centipoises



**Partition Coefficient
(octanol/water):**

No information found.

10. Stability and Reactivity

Stability: Stable under ordinary conditions of use and storage.

Reactivity: Not reactive under ordinary conditions.

Hazardous Decomposition

Products: None.

Hazardous Polymerization: Will not occur.

Incompatibilities: Strong oxidizers, acids, water reactive materials.

Conditions to Avoid: Incompatibles. Isolate from heat and open flame.

11. Toxicological Information

TSI-DC No information found on toxicology. It is not a carcinogen listed by IARC, NTP, NIOSH, OSHA, or ACGIH. It has tested negative for pathogenic microorganisms such as *Bacillus cereus*, *Listeria monocytogens*, *Salmonella* sp., *Pseudomonas* sp., fecal coliform, total coliform, yeast, and mold.

12. Ecological Information

Environmental Fate: No information found.

Environmental Toxicity: No information found.

Degradability: This product is completely biodegradable under both aerobic and anaerobic conditions.

Soil Mobility: This compound will move with groundwater until the adsorbed onto the soil.

Bioaccumulation Potential: No information found.

13. Disposal Considerations

Waste Disposal Method: No special disposal methods are required. The material is compatible with all known biological treatment methods. To reduce odors and permanently inactivate microorganisms, mix 100 parts (by volume) of TSI-DC consortium with 1 part (by volume) of bleach. Dispose of in accordance with local, state and federal regulations.

14. Transport Information

DOT Classification: N/A

Labeling: NA

Shipping Name: Not regulated

15. Regulatory Information

OSHA STATUS: This product is not hazardous under the criteria of the Federal OSHA hazard Communication Standard 29 CFR 1910.1200.



TSCA STATUS: No component of this product is listed on the TSCA inventory.
CERCLA (Comprehensive Response Compensation, and Liability Act): Not reportable.

SARA TITLE III (Superfund Amendments and Reauthorization Act)
Section 312 Extremely Hazardous Substances: None
Section 311/312 Hazard Categories: Non-hazardous Under Section 311/312
Section 313 Toxic Chemicals: None

RCRA STATUS: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

CALIFORNIA PROPOSITION 65: The following statement is made in order to comply with the California safe Drinking Water and Toxic Enforcement Act of 1986. The product contains no chemicals known to the State of California to cause cancer.

16. Other Information

NFPA Ratings:	Health: 1 Flammability: 0 Reactivity: 0
Date Prepared:	March 26, 2014
Revision Information:	SDS Section(s) changed since last revision of document include: None.
Disclaimer:	Terra Systems, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. TERRA SYSTEMS, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, TERRA SYSTEMS, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.
Prepared by:	Terra Systems, Inc.
Phone Number:	(302) 798-9553 (U.S.A.)

ATTACHMENT G

MATERIAL SAFETY DATA SHEETS

SAFETY DATA SHEETS

All Langan Field Personnel Completing This Work Plan Are To Have Real Time Accessibility To Material Safety Data Sheet (MSDs) or Safety Data Sheet (SDSs) Through Their Smart Phone.

The link is <http://www.msds.com/>

The login name is "drapehead"

The password is "2angan987"

If You Are Unable To Use the Smart Phone App, You Are To Bring Printed Copies of the MSDs/SDSs to the Site

ATTACHMENT H

Jobsite Safety Inspection Checklist



ATTACHMENT H
JOBSITE SAFETY INSPECTION CHECKLIST

Client: _____

Inspection Date: _____

Site: _____

Inspector: _____

Employees: _____

Notes: _____

Check one of the following: **A:** Acceptable **NA:** Not Applicable **D:** Deficiency

	A	NA	D	Remarks
GENERAL				
Appropriate PPE being worn by Langan employees and subcontractors?				
Air monitoring instruments calibrated daily and results recorded on the Daily Instrument Calibration check sheet?				
Air monitoring readings recorded on the air monitoring data sheet/field log book?				
Incident reporting procedures known?				
Site security an issue?				
Vehicle /pedestrian traffic issue?				
Adequate size/type fire extinguisher supplied?				
Evidence that drilling operator is responsible for the safety of his rig.				
First Aid kit available?				
PERSONAL PROTECTIVE EQUIPMENT				
Eye Protection?				
Head protection?				
Safety Shoes?				
Safety vests?				
Hand protection?				
Other?				
Deficiencies??				
HOUSEKEEPING				
Work area kept clean/tidy to minimize potential hazards?				
Waste being disposed of quickly and properly				
Adequate lighting for job?				
Portable water available?				
HAND TOOLS				
Are tools in good condition and properly used? (INSPECT)				
Are proper tools being used?				
Are tools safety stored when not in use?				
Have tools been inspected prior to use?				
Are employees familiar with using tools?				
Is additional PPE required for tools? Available?				
POWER TOOLS				
Are tools in good condition and properly used? (INSPECT)				
Are tools properly grounded?				
Safety guards in place and used correctly?				
Competent instruction / supervision?				
Cords include in inspection?				

HAZWOPER				
Employees have current 40-hr./8-hr./Supervisor HAZWOPER training?				
Project staff medically cleared to work in hazardous waste sites and fit-tested to wear respirators, if needed?				
Respiratory protection readily available?				
Subcontract workers have current 40-hr./8-hr./Spvsr. HAZWOPER training, as appropriate?				
Subcontract workers medically cleared to work on site, and fit-tested for respirator wear?				
Subcontract workers have respirators readily available?				
HEALTH & SAFETY PLAN				
HASP available on site for inspection?				
Health & Safety Compliance agreement (in HASP) appropriately signed by Langan employees and subcontractors?				
Hospital route map with directions posted on site?				
Emergency Notification List posted on site?				
Personnel trained in CPR/First Aid on site?				
MSDSs readily available, and all workers knowledgeable about the specific chemicals and compounds to which they may be exposed?				
Project site safe practices ("Standing Orders") posted?				
Health & Safety Incident Report forms available?				
Decontamination procedures being followed as outlined in HASP?				
UNDERGROUND UTILITY				
Mark outs of underground utilities done prior to initiating any subsurface activities?				
Underground utilities located and authorities contacted before digging?				
Visually observed mark-outs?				
Is subsurface work within three feet of underground utilities?				
- Is so, is or was soft dig techniques used?				
Drilling performed in areas free from underground utilities?				
EXCAVATION / TRENCH				
Are excavations/trenches over 5 feet deep sloped, shored or a trench box used?				
Operations supervised by a Competent Person?				
Is Competent Person performing daily inspections of excavation/trench?				
Adequate barricades in place?				
Have underground utilities been identified?				
Ladders / means of egress in trench with 25-foot of every worker?				
Has PE designed or approved protective system?				
Excavated material and other objects placed more than 2 feet away from excavation edge?				
Public protected from exposure to open excavation?				
CONFINED / PERMIT-ENTRY CONFINED SPACE				
People entering the excavation regarding it as a permit-required confined space and following appropriate procedures?				
Confined space entry permit is completed and posted?				
All persons knowledgeable about the conditions and characteristics of the confined space?				
All persons engaged in confined space operations have been trained in safe entry and rescue (non-entry)?				
Full body harnesses, lifelines, and hoisting apparatus available for rescue needs?				
Attendant and/or supervisor certified in basic first aid and CPR?				
Confined space atmosphere checked before entry and continuously while the work is going on?				
Results of confined space atmosphere testing recorded?				
Evidence of coordination with off-site rescue services to perform entry rescue, if needed?				
ELECTRICAL SAFETY				
Equipment at least 10 feet from overhead power lines?				
Is equipment grounded?				
GFCI used and tested where required?				
Are extension cords rated for this work being used and are they properly maintained?				
Electrical dangers posted at site?				

FLAMMABLE LIQUIDS				
Are flammable liquids used at site?				
Are flammable liquids stored in appropriate containers?				
Are flammable liquids kept away from combustion sources?				
Do flammable liquid containers have warning labels?				
LADDERS				
Are ladders used at site?				
Were ladders inspected prior to use?				
Are ladders in good working condition?				
Are ladders secured to prevent slipping, sliding or falling?				
Do side rails extend three feet above top of landing area?				
Are top two steps of stepladders being used?				
Is extension on ladder facing out?				
Are ladders sufficient for task?				
Are ladders sufficient for task?				

Unsafe acts observed? _____

Additional remarks _____

Notes: _____

Distribution: Project Manager - Name: _____

Health & Safety Officer - Name: _____

Health & Safety Manager- Name: Anthony Moffa, CHMM

ATTACHMENT I

Langan Guidelines

ATTACHMENT I

LANGAN GUIDELINES

GENERAL

- No smoking, eating, or drinking in this work zone.
- Upon leaving the work zone, personnel will thoroughly wash their hands and face.
- Minimize contact with contaminated materials through proper planning of work areas and decontamination areas, and by following proper procedures. Do not place equipment on the ground. Do not sit on contaminated materials.
- No open flames in the work zone.
- Only properly trained and equipped personnel are permitted to work in potentially contaminated areas.
- Always use the appropriate level of personal protective equipment (PPE).
- Maintain close contact with your buddy in the work zone
- Contaminated material will be contained in the Exclusion Zone (EZ).
- Report any unusual conditions.
- Work areas will be kept clear and uncluttered. Debris and other slip, trip, and fall hazards will be removed as frequently as possible.
- The number of personnel and equipment in the work zone will be kept to an essential minimum.
- Be alert to the symptoms of fatigue and heat/cold stress, and their effects on the normal caution and judgment of personnel.
- Conflicting situations which may arise concerning safety requirements and working conditions must be addressed and resolved quickly by the site HSO.

TOOLS AND HEAVY EQUIPMENT

- Do not, under any circumstances, enter or ride in or on any backhoe bucket, materials hoist, or any other device not specifically designed to carrying passengers.
- Loose-fitting clothing or loose long hair is prohibited around moving machinery.
- Ensure that heavy equipment operators and all other personnel in the work zone are using the same hand signals to communicate.
- Drilling/excavating within 10 feet in any direction of overhead power lines is prohibited.
- The locations of all underground utilities must be identified and marked out prior to initiating any subsurface activities.
- Check to insure that the equipment operator has lowered all blades and buckets to the ground before shutting off the vehicle.
- If the equipment has an emergency stop device, have the operator show all personnel its location and how to activate it.
- Help the operator ensure adequate clearances when the equipment must negotiate in tight quarters; serve as a signalman to direct backing as necessary.
- Ensure that all heavy equipment that is used in the Exclusion Zone is kept in that zone until the job is done, and that such equipment is completely decontaminated before moving it into the clean area of the work zone.
- Samplers must not reach into or get near rotating equipment such as the drill rig. If personnel must work near any tools that could rotate, the equipment operator must completely shut down the rig prior to initiating such work. It may be necessary to use a remote sampling device.

ATTACHMENT J

Job Safety Analysis Form



Job Safety Analysis (JSA) Health and Safety

JSA TITLE: EZVI Injections

JSA NUMBER: 001

DATE CREATED: 3/11/2022

CREATED BY: AB

REVISION DATE:

REVISED BY:

Langan employees must review and revise the Job Safety Analysis (JSA) as needed to address the any site specific hazards not identified. Employees must provide their signatures on the last page of the JSA indicating they have review the JSA and are aware the potential hazards associated with this work and will follow the provided preventive or corrective measures.

PERSONAL PROTECTIVE EQUIPMENT REQUIRED: (PPE): ☐ Required ☒ As Needed		
☒ Steel-toed boots	☒ Nitrile gloves	☒ Dermal Protection (Tyvek)
☒ Long-sleeved shirt	☐ Leather/ Cut-resistant gloves	☒ High visibility vest/clothing
☒ Safety glasses	☒ Face Shield	☒ Hard hat
ADDITIONAL PERSONAL PROTECTIVE EQUIPMENT NEEDED (Provide specific type(s) or descriptions)		
☐ Air Monitoring:	☐ Respirators:	☐ Other:
JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE OR CORRECTIVE ACTION
1. Reagent delivery and Injection Setup/Breakdown	1. Contact with reagents 2. Heavy lifting 3. Moving equipment (forklift)	1a. Keep SDSs on hand. 1b. Wear appropriate PPE 2a. Practice safe lifting techniques 3a. Be aware of surroundings. Always make eye contact with person on moving equipment.
2. EZVI Injections via DPT	1. Moving/active equipment (drill rig) 2. Contact with reagents 3. Slips, trips, and falls	1. Be aware of surroundings. Always make eye contact with person on moving equipment. 2a. Keep SDSs on hand. 2b. Wear appropriate PPE 3. Maintain good housekeeping
3. Injection Monitoring	1. Moving/active equipment (drill rig) 2. Contact with reagents and/or contaminated groundwater 3. Slips, trips, and falls	1. Be aware of surroundings. Always make eye contact with person on moving equipment. 2a. Keep SDSs on hand. 2b. Wear appropriate PPE 3. Maintain good housekeeping
Additional items identified in the field.		
If additional items are identified during daily work activities, please notify all relevant personnel about the change and document on this JSA.		