CONTRACT DOCUMENTS

EXHIBITS 1 AND 2
100% GEOTECH AND ENVIRONMENTAL REPORTS

FINAL CSO COMPLIANCE PROGRAM - EARLY ACTION PROJECT

City of St. Joseph
700 Broad Street, St. Joseph, Michigan 49085

April 19, 2024

2851 Charlevoix Drive SE, Suite 108, Grand Rapids, MI 49546

GEOTECHNICAL EVALUATION REPORT

CITY OF ST JOSEPH CSO FINAL COMPLIANCE
ST. JOSEPH, MICHIGAN

SME Project Number: 089742.01
March 7, 2024

SME

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March 7, 2024

Mr. Steven A. Kalinowski, PE
Senior Project Manager
Wade Trim
25251 Northline Road
Taylor, Michigan 48180

Via e-mail: skalinowski@wadetrim.com

RE: Geotechnical Evaluation
City of St. Joseph CSO Final Compliance
St. Joseph, Michigan
SME Project No. 089742.01

Dear Mr. Kalinwoski:

We have completed our geotechnical evaluation for the City of St. Joseph CSO Final Compliance project in St. Joseph. Based on the soil and groundwater conditions encountered at the boring locations, we have developed recommendations for structural support of sewer elements in the project area. This report summarizes the field and laboratory testing procedures, presents the subsurface conditions encountered, and summarizes the design prepared by SME.

We appreciate the opportunity to be of service. If you have questions or require additional information, please contact us.

Sincerely,

SME

Aaron J. Reed, PE
Senior Consultant/Project Manager

Enclosure: SME's Geotechnical Evaluation Report dated March 7, 2024

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1. INTRODUCTION

This report presents the results of the geotechnical evaluation performed by SME for the sewer improvements associated with the City of St. Joseph CSO Final Compliance project in St. Joseph, Michigan. SME conducted services in general accordance with the scope outlined in SME Proposal No. P04546.23. However, borings B201 and B202 were terminated 6.1 feet and 5.7 feet, respectively, above the planned termination depth due to the encountered hardpan soil conditions. Wade Trim authorized our services for this evaluation.

To assist with our evaluation and the preparation of this report, SME was provided a PDF file of the drawing set (33 pages) for the "Final CSO Compliance Early Action Design – New CSO-005 Diversion Chamber and Underflow Pipe", prepared by Wade Trim, dated February 1, 2024, and labeled "90% submittal to EGLE".

1.1 PROJECT BACKGROUND

Wade Trim provided SME with the following description of the overall combined sewer overflow (CSO) project for the City of St. Joseph.

> "The City of St. Joseph is entering the final phases for completion of their long-term combined sewer separation program to address uncontrolled CSO discharges, as required under their NPDES permit No. MI0026735 issued by EGLE. The remaining CSOs to be addressed are CSOs 003, 005, and 011. Previous analysis has shown that CSO 003 and 011 no longer discharge as a result of commitments by the City to continuously improve the system, but the outfall chambers need to be modified for closure. Analysis has also shown that the remaining CSO 005 will require the construction of a 1.2-MG equalization (EQ) tank to meet control requirements. The City is currently engaged in a pilot infiltration and inflow (I&I) removal project in two pilot areas of the system to potentially reduce the required storage volume, and if determined successful, may expand the I&I removal program into additional areas."

Two sites were originally considered for the new 1.2 MG equalization (EQ) tank, the existing Kiwanis Park located at 1200 Pearl Street, and the existing St. Joseph Public Works property located at 1160 Broad Street in St. Joseph, Michigan. SME performed the following geotechnical evaluations (labeled draft) for each site in order to help facilitate the City of St. Joseph's selection of a site and tank design:

- Kiwanis Park: Draft Geotechnical Evaluation Report dated September 23, 2023 (SME Project No. 089742.00).
- Public Works: Draft Geotechnical Memorandum dated June 29, 2023 (SME Project No. 089742.00).

After consideration of both sites and various tank designs, the City of St. Joseph selected an above-ground storage tank at the Public Works site for the proposed project.

1.2 SITE CONDITIONS

The overall Public Works project site is generally located at two separate properties, the existing St. Joseph Public Works property located at 1160 Broad Street, and the exiting Pri Mar Petroleum property location at 1183 Broad Street in St. Joseph, Michigan. The site location is depicted on the Location Map inset included on the Boring Location Diagram (Figure No. 1) contained in Appendix A.

The portion of the existing Public Works property being considered as part of this project is generally covered with asphalt pavement, grass lawn areas, and gravel areas used to store various pieces and equipment and stockpile materials. The ground surface elevations within the project area at the Public Works site generally slope upward going east to west, from about elevation 583 feet to 594 feet. The Pri

Mar property is generally covered by asphalt pavement and various structures, and an at-grade storage tank are present with the project area. The ground surface across the Pri Mar property is relatively flat and at about elevation 584 feet. Within the project area, many existing above and below ground utilities are present. Existing structures, site grades, and utilities are depicted on Figure No. 1.

1.3 PROJECT DESCRIPTION

The overall project consists of the construction of the previously described 1.2 MG at-grade storage tank and associated below grade structures (manholes, pump station, and diversion chambers) and sewer pipes. The locations of the proposed improvements are depicted on Figure No. 1. The project is being split into two phases, with the future storage tank be constructed as part of the second phase as shown in the image below.

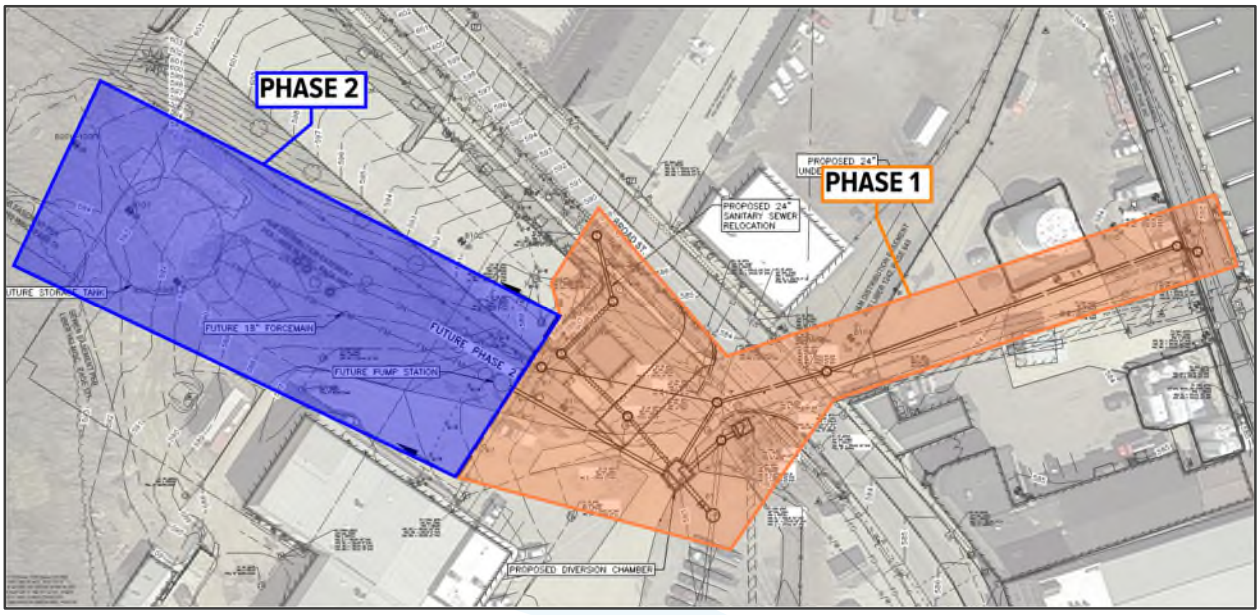


IMAGE 1: Proposed project phases.

Inverts of the proposed below grade structures included as part of Phase 1 range from about elevation 583 feet to 573 feet, sloping downward going from west to east and northwest to southeast along the proposed alignments. These elevations correspond to depths ranging from about 6 feet to 12 feet below existing site grades. Proposed below-grade piping included as part of Phase 1 is to be gravity controlled with slopes of about 0.07 to 6.32 percent, and pipe sizes ranging from 18-inches to 36-inches in diameter.

2. EVALUATION PROCEDURES

2.1 FIELD EXPLORATION

SME completed three addition borings (B201 through B203) for the project between December 26 through 29, 2023. SME completed previous boring B1 on September 22, 2016, under SME Project No. 075169.00. SME completed borings B101 through B105 between September 6 through 8, 2023, under SME Project No. 075169.01. The approximate boring locations are depicted on Figure No. 1.

Wade Trim and SME jointly determined the planned number, depths, and locations of the borings. SME located the borings in the field by taping from existing site features and by using a GPS unit. SME estimated the existing ground surface elevations at the boring locations performed as part of this evaluation to the nearest 1-foot based on site topographic information contained on the referenced project plan set prepared by Wade Trim.

The borings were drilled using a rotary-type drill rig. The borings were advanced using continuous-flight, hollow-stem augers. The borings included soil sampling based upon the Split-Barrel Sampling procedure. Recovered split-barrel samples were sealed in glass jars by the driller.

Groundwater level measurements in the boreholes were recorded during and immediately after completion of each boring. The boreholes were backfilled with auger cuttings after completion. Therefore, long-term groundwater levels are not available from the borings.

Soil samples recovered from the field exploration were returned to the SME laboratory for further observation and testing.

2.2 LABORATORY TESTING

The laboratory testing program consisted of performing visual soil classification on recovered samples in accordance with ASTM D2488. Moisture content tests were performed on recovered cohesive samples and on samples that visually appeared to be organic in nature. In addition, hand penetrometer tests or Torvane shear tests were performed on recovered cohesive samples, and at pervious boring B1, Torvane shear tests were performed on organic samples where a relatively undisturbed sample was collected. The Laboratory Testing Procedures in Appendix B provides general descriptions of the laboratory tests. Based on the laboratory testing, we assigned a Unified Soil Classification System (USCS) group symbol to each of the soil strata encountered.

Upon completion of the laboratory testing, boring logs were prepared that include information on materials encountered, penetration resistances, pertinent field observations made during the drilling operations, and the results of the laboratory tests. The existing ground surface elevation at the boring location, as estimated by SME, is also provided on each boring log. The boring logs are included in Appendix A of this report. Explanations of symbols and terms used on the boring logs are provided on the Boring Log Terminology sheet included in Appendix A of this report. The soil descriptions included on the boring logs were developed from both visual classification and the results of laboratory tests, where applicable.

Soil samples retained over a long time, even sealed in jars, are subject to moisture loss and are no longer representative of the conditions initially encountered in the field. Therefore, soil samples are normally retained in our laboratory for 60 days and are then disposed of, unless instructed otherwise.

3. SUBSURFACE CONDITIONS

3.1 SOIL CONDITIONS

The conditions encountered at the borings generally consisted of asphalt pavement or surface topsoil overlying sand fill. The sand fill was generally underlain by natural sands at borings B101, B102, B103, B104, and B202. The natural sands at borings B101, B102, B103, B104, and B202, and the sand fill at boring B1, was underlain by organic clays or silts. The organic soils encountered in the borings are sometimes referred to colloquially as “marl.” The organic soils were encountered extended to depths ranging from about 27 feet to 55 feet (elevations 565 feet to 529 feet). The organic soils were underlain by interbedded natural sands, silts, and clays extending to the explored depths of the borings, or to the depth at which dense glacial till (commonly called “hardpan”) was encountered. Hardpan was encountered at borings B101, B102, B103, B104, B201, and B202 at depths ranging from about 79.5 feet to 88 feet below the existing ground surface, or between about elevation 507 feet and 503 feet.

The organic soils (i.e., the marl) encountered in the borings are typical of soils that are often encountered in and around water bodies and in flood plains. Initial development around these areas typically involves fill being placed over the organics to raise site grades. Therefore, the organic soils are often encountered

"buried" below existing fill. In some of the borings, sands, silts, and/or clays were encountered interbedded within or above the organic soils, which is typical for alluvial deposits (i.e., soils deposited in water). Please refer to the boring logs for the specific soil conditions encountered at each boring, and for the results of the field and laboratory testing.

The soil profile described above and included on the appended boring logs is a generalized description of the conditions encountered. The stratification depths shown on the boring logs are intended to indicate a zone of transition from one soil type to another. They are not intended to show exact depths of change from one soil type to another. The soil descriptions are based on visual classification of the soils encountered. Soil conditions may vary between or away from the boring locations from the conditions noted on the logs. Please refer to the boring logs for the soil conditions at the specific boring locations.

3.2 GROUNDWATER CONDITIONS

As would be expected due to the site being in a low-lying area and in close proximity to the St. Joseph River, groundwater was observed in the borings at relatively shallow depths during drilling and after completion of drilling. In general, most groundwater in the borings was observed between about elevations 575 feet and 586 feet.

The predominant site groundwater levels are expected to be relatively shallow at this site because of the presence of the nearby St. Joseph River, and because most of the site is a low-lying area within or near a flood plain. Hydrostatic groundwater levels and groundwater seepage rates encountered in excavations should be expected to fluctuate throughout the year, based on variations in precipitation, evaporation, run-off, the water level within the river, and other factors. The groundwater levels indicated on the boring logs, and presented in this section, represent conditions at the time the readings were taken. The actual groundwater levels at the time of construction may vary.

4. ANALYSIS AND RECOMMENDATIONS

4.1 DISCUSSION ON THE PRESENCE OF ORGANIC SOILS

The project site is located within a relatively low-lying area of the City of St. Joseph. As indicated above, the borings encountered organic soils at borings B101, B102, B103, B104, B201, and B202. Similar soil deposits are present across the St. Joseph River in Benton Harbor, specifically in the areas of Benton Harbor that are also situated at relatively low elevations along the St. Joseph River, along Main Street, and along the Paw Paw River. Because of the presence of these soils in Benton Harbor, many of the buildings in the downtown area of Benton Harbor closest to the St. Joseph River and the Paw Paw River are situated on deep foundations (i.e., driven, or drilled piles). This include the sanitary sewer constructed in 2017, at the existing Public Works site which was supported using deep foundations. Where older structures in these areas were not situated on deep foundations, settlements on the order of several inches have been experienced.

Organic soils, such as marl, are compressible, meaning they will compress over time, resulting in settlement at the ground surface. The amount of compression or settlement that will be experienced over time is dependent on the thickness of the organic deposit, the compressibility of the material, and the amount of additional stress or load (if any) placed on the organic soils (e.g., due to the construction of overlying improvements or placement of new fill). Organic soils with higher moisture contents are more compressible than similar organic soils with lower moisture contents, and peat tends to be more compressible than marl. Because organic soils will continue to compress or settle slowly over time, they can be problematic if left in-place below structures and other improvements due to excessive total and differential settlements that might be experienced over time. For critical utilities that convey fluids by gravity, settlement over time could lead to reduced or compromised hydraulic efficiency (due to changes in the slopes of the pipes), and failures could occur at pipe joints if differential settlements occur over a relatively short distance.

The organic soils encountered in the borings for this project extend relatively far below the anticipated invert levels for the sanitary sewer pipe and bottom elevation of the sanitary sewer structures. Specifically, the organic soils at the boring locations extended to depths ranging from about 27 feet to 55 feet below the existing ground surface. Therefore, undercutting to remove the organic soils below new sanitary sewer infrastructure is not considered feasible at this site.

The project team is considering supporting some of the associated structures and pipes on a deep foundation (pile) system and some on existing subgrades. If the vertical soil pressures on the underlying organic soils is not increased (or decreased), then the settlements are limited to the long-term secondary settlements. Based on our review of the soil information obtained from the borings and the provided project information, we estimate the long-term secondary settlements of the proposed Phase 1 improvements could fall within the ranges shown in the image below for the different areas of the project.

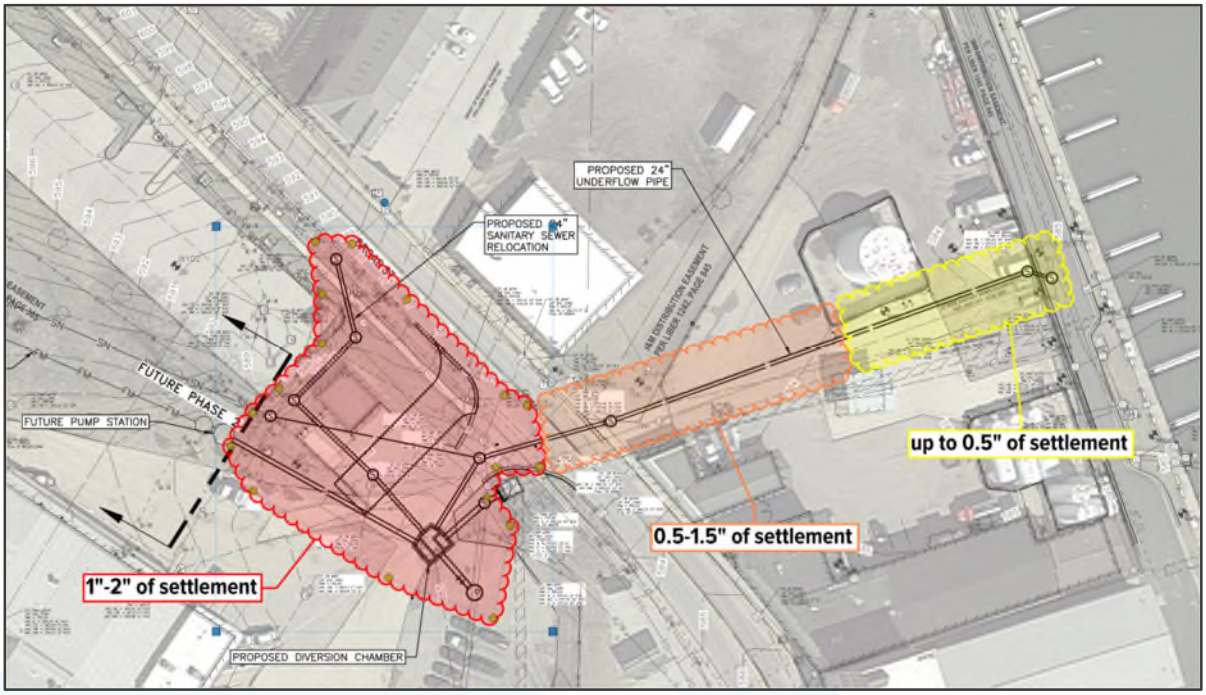


IMAGE 2: Estimated long-term secondary settlements of proposed Phase 1 improvements if supported over existing subgrades.

Risks associated with new sewer pipe and structures on existing subgrades and ways to mitigate those risks are described in the following sections. Recommendations on how to support select structures and pipes using deep foundations are also provided in the following sections.

4.2 SANITARY SEWER CONSTRUCTION

4.2.1 TRENCH EXCAVATION SUPPORT

Where new sanitary sewer pipes, manholes, and diversion chambers will be constructed, the sanitary sewer elements will be installed by the open-cut method of construction. For the open-cut method of sewer installation, the contractor must provide a safely sloped, benched, or supported excavation (e.g., using trench boxes, sheeting, etc.) in compliance with federal, state, and local safety regulations for persons working in an excavation that may expose them to the danger of moving ground. Stockpiled soils and construction equipment should not be placed, nor operated, near the edge of excavations as the increased load along the edges of the excavations could result in instability of the slope of the excavation.

Based on invert depths ranging from about 6 feet to 9 feet below grade within the limits of the Public Works property, we anticipate organic clay (marl), natural sands, and sand fill will be encountered based on the soil conditions encountered at borings B1, B102, B103, and B202 at anticipated invert depths of structures and sewer pipes. Based on invert depths ranging from about 9 feet to 12 feet below-grade within the limits of the Pri Mar property, we anticipate sand fill, natural sands, and natural clays will be encountered based on the soil conditions encountered at boring B104 and B203.

It may be especially difficult to maintain stable, sloped excavations through existing fill, organic soils, or lower strength natural soils. In areas where adequate side sloping or benching is not feasible, due to excavation depth and site constraints, the presence of weak organic soils, or the proximity of existing structures, the excavation sidewalls must be supported with temporary earth retention system (TERS) of either internally-braced sheeting or trench boxes. The actual type of lateral support required will be based on the soil and groundwater conditions encountered, the depth of the excavation, and the proximity of nearby structures. Temporary excavation support measures should be designed by an experienced Registered Professional Engineer retained by the excavation contractor, and installed by a contractor that is experienced with the type of excavation support measures designed by the engineer. If material is stored or equipment will be operated near a supported excavation, the design for the shoring or bracing must consider the extra pressure due to the superimposed loads.

Excavations performed within or adjacent to existing roadways or other structures may require underpinning and/or bracing and shoring so that these existing improvements are not undermined or disturbed. Underpinning or shoring for temporary support of existing improvements to remain should be designed by an experienced Registered Professional Engineer retained by the excavation contractor and installed by a contractor that is experienced with the type of underpinning or shoring designed by the engineer. Special measures for temporary utility support will be required where the sanitary sewer alignment crosses existing utilities and passes close to existing utilities (e.g., gas lines, water mains, etc.).

We recommend consideration should be given to including the design of required TERS in critical area, such as near existing utilities and within the limits of the Pri Mar property, as part of the bid documents. Including TERS as part of the bid documents in these areas reduces the risk of damaging existing structures during construction as the project team can dictate the type and areas where TERS is required. It also reduces the variability that may be seen in contractor bids. We would be pleased to assist you in the development of TERS plans for the project.

4.2.2 TEMPORARY GROUNDWATER CONTROL

Based on the soil and groundwater conditions observed at the boring locations and on the anticipated depths of excavation, groundwater seepage, or accumulations should be expected within excavations for construction of the new sanitary sewer elements. Therefore, temporary dewatering measures will be necessary to maintain a relatively dry excavation for sanitary sewer construction.

The type of dewatering system will depend on the specific soil conditions and the required depth of excavation below (or near to) the groundwater level. Based on the information provided by Wade Trim, the bottom of new sewer elements will range between about 6 feet to 12 feet below the existing ground surface. We expect slightly deeper excavations (extending 2 feet to 3 feet deeper than the sewer elements) will be required to construct structural support elements used to support specific structures. Based on the borings, excavations are expected to terminate either in organic soils, or in sands or clays generally underlain by organic soils. Therefore, we anticipate dewatering using conventional sump and pit methods will typically be able to control groundwater seepage on a local basis for excavations extending 1 foot to 2 feet below the groundwater levels. Where sands are exposed in excavation sidewalls or the bottom of excavations the volume of groundwater seepage will be higher and, multiple, closely-spaced sumps may be required to control accumulations. Groundwater could also be controlled (i.e., reduced) by using the selected TERS or with wells or wellpoints. The groundwater should be temporarily lowered to a minimum of 1-foot below the bottom of the excavation for construction of the sanitary sewer, including below structural elements used to support the new sewer.

It should be noted that, even after dewatering, the subgrade soils near the bottom of the excavation will probably still be wet and sensitive to disturbance. In such a case, a layer of crushed stone may need to be placed over the wet subgrade to protect the subgrade, or to form a stable working platform.

The design of temporary dewatering measures are typically the responsibility of the contractor. We would be pleased to assist you in the development of a performance based specification for this portion of the project.

4.2.3 SEWER PIPE AND STRUCTURE SUPPORT

It is our understanding the proposed sanitary sewer pipe and structures highlighted in the image below are to be supported on existing subgrades.

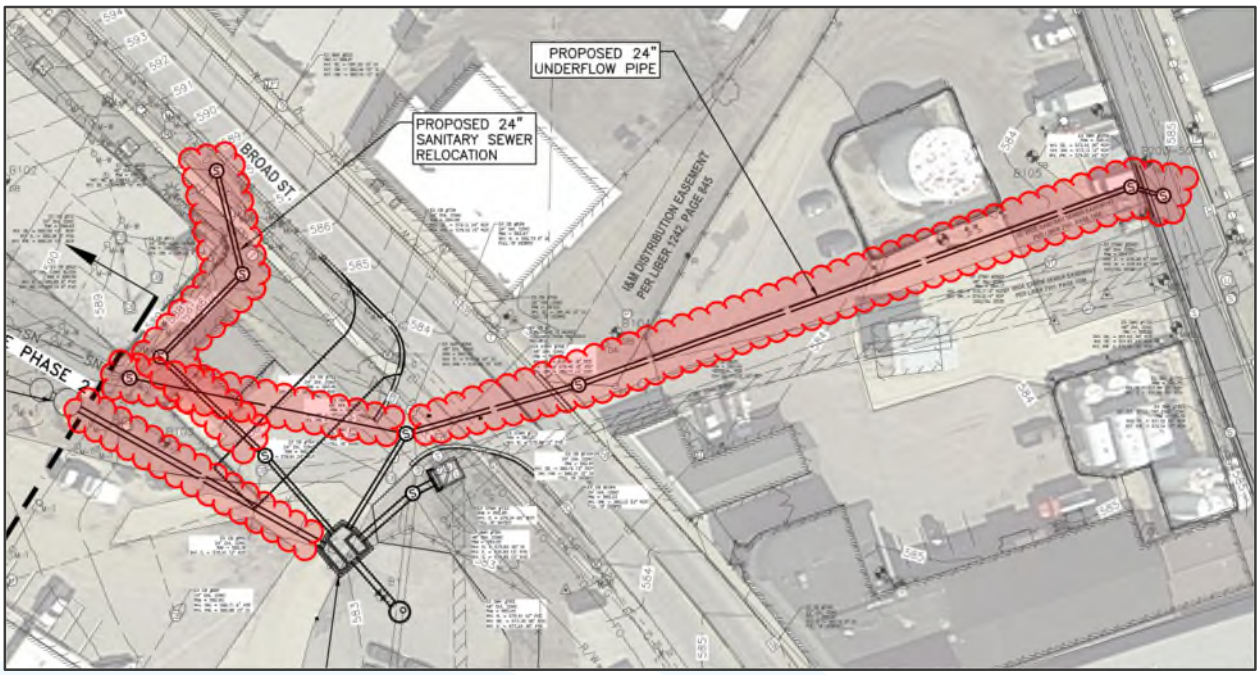


IMAGE 3: Highlighted structures and sanitary sewer pipe to be supported on existing subgrades.

Where organic soils extend below new sanitary sewer pipe and structures, and where these organic soils cannot be practically undercut and replaced with engineered fill, long-term settlement will occur as described in Section 4.1. The risk related to the future additional settlement can be mitigated through various means. The overburden pressure (and long-term settlement) can be reduced by excavation of some of the soils below the structures/utilities and replacing with a lightweight fill material. Expanded polystyrene (EPS) is a common “geo-foam” material for this purpose, but there are other options available, such as lightweight aggregates. The diameter and slope of gravity sewers can also be increased to account for future differential settlement that could result in low spots, or “bellies,” along pipe runs.

At a minimum, we recommend existing subgrades be overcut by 1 foot to 2 feet and an MDOT nonwoven stabilization fabric be placed at the base of the excavation to create a more stable subgrade on which to construct the proposed structures and sanitary sewer pipe within these areas. The recommend overcut should extend at least 2 feet beyond the edge of proposed structures and sanitary sewer pipe. We recommend MDOT 6A crushed aggregate be placed on top of the stabilization fabric and be used to backfill up to the bottom of the bedding material used below the bottom of the overlying structure or pipe. The underlying stabilization fabric should either be wrapped around the MDOT 6A or a separate layer of stabilization fabric placed over the top of the 6A to prevent the migration of finer particles of the bedding material into the void space of the aggregate.

Regardless of the above recommendations, the utilities should be expected to settle some over time and including some flexibility into the design of the utilities, such as the use of flexible pipe or joint materials, or steeper than normal invert gradients can reduce maintenance or replacement costs. If the City of St. Joseph cannot accept the increased risk of supported proposed sewer pipe and structures over organic soils, then these elements should be supported on deep foundations (piles) as described below.

4.2.4 PILE-SUPPORTED SEWER STRUCTURES

As part of the 2017 construction project at the existing Public Works property, the elements depicted below were constructed and are supported by deep foundations consisting of helical piles.

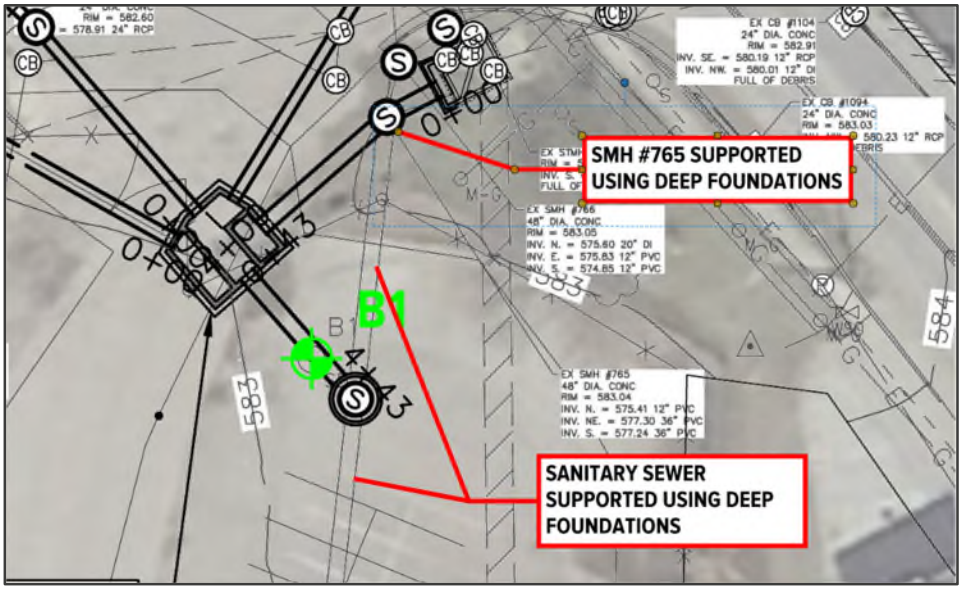


IMAGE 4: Structure constructed as part of 2017 project supported using deep foundations.

It is our understanding the proposed structures depicted in the image below are to be supported by deep foundations. We recommend these structures be supported by helical piles similar to what was used in 2017.

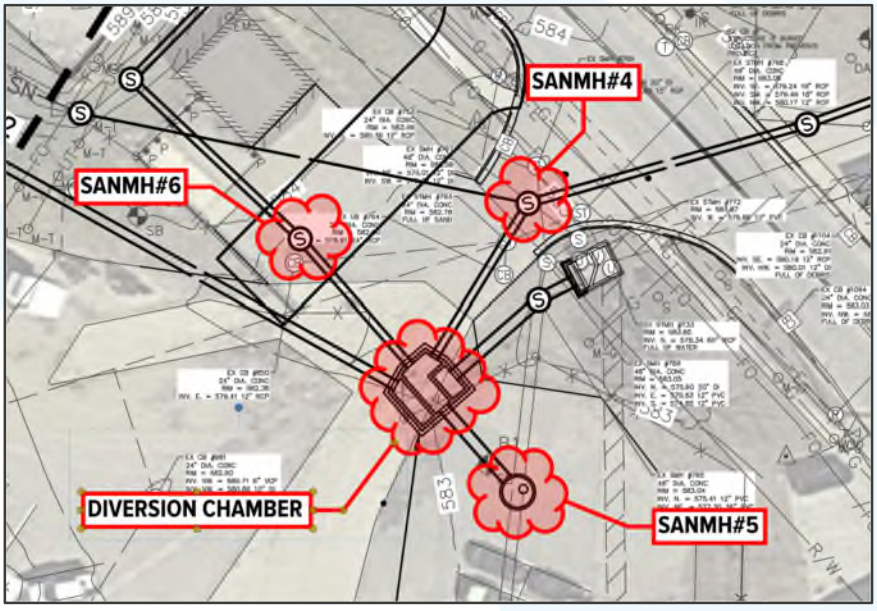


IMAGE 5: Proposed structures to be supported using deep foundations.

Helical piles are a specific type of a deep foundation that consist of a circular steel plates, formed into the shape of a helix, and welded to a central steel shaft. The helix or helixes are attached to a lead section and the helical pile is installed by applying torque to the shaft of the lead section and rotating or screwing the plate(s) and shaft into the soil. Shaft extensions are added to continue advancement of the lead section to a suitable bearing depth. Typically, the diameter of the helix plates ranges from about 8 inches to 14 inches, and multiple helixes may be used on the lead section to increase the load capacity compared to the use of a single helix.

There are a few advantages of using a helical pile foundation system for support of these elements. First, the piles can be installed with little if any vibrations, which allows the piles to be utilized close to existing improvements, such as buildings and utilities, without the risk of damage. Second, the compressive capacity of each pile can be estimated during installation by measuring the torque required to install the helical piles. Therefore, there is a level of confidence that suitable bearing conditions are reached based on the torque readings while correlating the tip elevation of the helical pile with the project geotechnical information to ensure that the pile helices are founded within suitable natural soils. This method of confirmation allows the final pile depths to be adjusted during construction, if necessary, to account for variations in soil conditions at the specific pile locations, and to ensure that the helical piles have been sufficiently extended through unsuitable soils to bear within suitable natural soils. A load test can also be performed (if needed) on a helical test pile to calibrate the torque reading developed when installing the test pile.

A disadvantage of utilizing helical piles is that a pile may meet refusal on obstructions (or in dense/hard soils) before reaching the final required minimum tip elevation. Therefore, provisions for obstruction removal from shallow depths (e.g., by pre-excavation) and the establishment of a minimum tip elevation that the helical pile needs to reach prior to using torque as an indicator to measuring capacity should be included in the contract documents. For refusal at deeper depths, the pile may need to be extracted, examined for damage, and then installed at an offset location from the plan location to avoid the obstruction.

There are several different manufacturers of helical piles, with each manufacturer offering slightly different components. However, each manufacturer's helical pile system is based on the general description provided above. Local contractors sometimes have licensing agreements with specific helical pile manufacturers to install the specific type of helical pile distributed by that manufacturer. All helical pile material for use on this project should include a hot-dipped galvanized coating conforming to ASTM A153 to mitigate the potential for corrosion within the organic soils. We recommend the helical piles for this project have round shafts to provide greater resistance to buckling compared to helical piles with square shafts. We also recommend the hollow annulus of the pile shafts be filled with cement grout for an added measure of corrosion protection.

Helical piles will develop their vertical load capacity by bearing on the helixes within the natural inorganic soils below the organic soils that remain in-place. The load capacity of each helical pile will be developed from end-bearing on the helices attached to the lead section of the pile. A small amount of resistance due to skin friction along the shaft of each pile is also developed, but this contribution is typically ignored when considering compressive capacity. However, downdrag due to the relative downward movement of soils along the pile shaft is typically considered in the design where organic soils are present.

Wade Trim requested helical piles be designed to accommodate a working capacity of 50 kips. The 2017 project utilized a helical pile with a lead section with four helices (consisting of a 10-inch-diameter helix, a 12-inch-diameter helix, and two, 14-inch-diameter helices). For an individual helical pile with a four-helix system (10-12-14-14), a load test performed during the 2017 construction to verify a working capacity of 50 kips. The load test data indicate less than ½-inch of total pier settlement at the design working load of 50 kips per pier. Based on the requested working capacity requested by Wade Trim and results of the previously performed load test, we recommend the same helix configuration be used for this project.

We anticipate an ultimate capacity of 108 kips per pile in compression can be developed for piles extending to about 70 feet below the sewer infrastructure. For our design, we utilized a factor-of-safety (FOS) of 2.0 applied to the ultimate capacity in compression. We also considered a downdrag load of

about 8 kips per pile. Downdrag on the piles could occur over time if the organic soils surrounding the piles move sufficiently downward relative to the piles, which could result from raising grades slightly or simply for secondary compression of the organic soils.

4.2.5 PILE-SUPPORTED SANITARY SEWER PIPE

In addition to the structures described in Section 4.2.4, the proposed sanitary sewer depicted in the image below is to also to be supported by deep foundations consisting of helical piers.

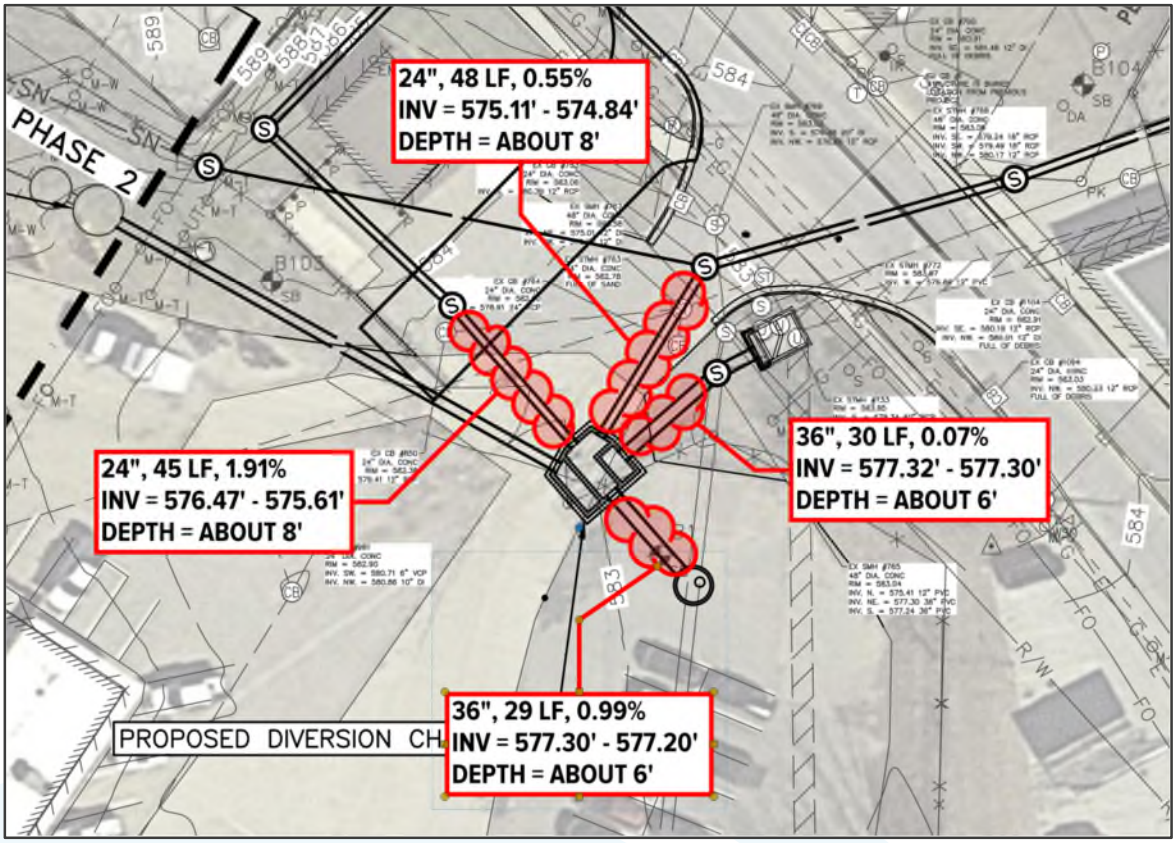


IMAGE 6: Sections of sanitary sewer pipe to be supported using deep foundations.

With long-term secondary compression of the organic soils in this area expected to range between about 1-inch to 2-inches, the underlying subgrade cannot be considered for long-term support of the overlying sanitary sewer pipe. Therefore, the deep foundation system must be designed to support the pipe, fluid within the pipe, the overlying subgrade, and any additional surcharge or live loads, as if the underlying subgrade was not available for support. All sanitary sewer pipe for this project is to be ductile iron. Therefore, the pipe within these areas could act as a bridge between points of support, assuming the pipe is rigid enough to withstand the described loading.

We recommend helical piers be used to support the proposed sanitary sewer within the defined areas in Image 6. Due to the diameter of the pipes, we recommend two helical piers be used with a cross beam placed between the piers be used to support the pipe. The pipe should be strapped to the cross beam. We recommend the helical piers recommended in Section 4.2.4 with a working capacity of 50 kips (factor of safety of 2.0) also be used to support the proposed sanitary sewer. When determining the appropriate spacing for pile supports, we recommend the soil and surcharge loading listed in Table 1 be applied to the length of the pipe segments. At a minimum, we recommend a pile pair be placed on at least one side of every pipe joint.

TABLE 1: SOIL AND SURCHARGE LOADING

PIPE DIAMETER	DEPTH	SOIL LOAD (POUNDS PER LINEAR FOOT)	SURCHARGE LOAD (POUNDS PER LINEAR FOOT)	TOTAL SOIL AND SURCHARGE LOAD (POUNDS PER LINEAR FOOT
36-inches	6 feet	3,000	1,000	4,000
24-inches	8 feet	5,000	500	5,500

The helical pier contractor should submit analysis and calculations supporting the required design loads with the appropriate factor of safety. Helical pier submittals should also include details on the specific helical pier system along with installation methods and QC procedures.

4.3 ABOVE GROUND CONCRETE TANK SUPPORT

Based on the conditions encountered at borings B101, B201, and B202, the proposed above-ground tank will be situated over organic and soft soils that extend to a depth of about 35 feet to 50 feet below the existing ground surface. As previously discussed, these soils are weak and compressible and subject to short and long term settlement under even modest loading. Deep foundations consisting of either augered, cast-in-place (ACIP) piles or driven steel H-piles are recommended for support of the proposed tank. To develop sufficient axial capacity, the piles will need to be driven through organic/soft soils, the underlying sands, and lean clays, and into the hard silt/clay stratum. Estimated pile tip elevations are expected to be in the range of 500 feet to 490 feet, with pile lengths of 90 feet to 100 feet from existing grade.

Allowable capacities for ACIP piles are expected to range from 150 kips to 400 kips in compression and 50 kips to 150 kips in tension, for diameters ranging from 18 inches to 36 inches.

Allowable capacities for H-piles are expected to range from 150 kips to 200 kips in compression and 50 kips to 80 kips in tension, for HP12x53 piles and HP14x73 piles, respectively.

The preliminary pile working capacities presented above are based on a factor of safety of 2.0 applied to the ultimate capacity of the pile in compression. Resulting settlement due to elastic compression of the pile at the design working capacity is estimated to be between about ¼-inch and ½-inch. Other pile capacities can be considered for use on this project by varying the pile diameter and/or the pile length. A pile load test would be necessary for each pile depth/diameter combination to verify the pile is suitable for the design working capacity. The above capacities assume grade levels are not significantly raised, otherwise additional down drag loads due to settlement of the organics will reduce the net allowable compressive capacities of the soils.

Since the foundations (piles and concrete mat) are expected to be constructed just below the existing grade and above the groundwater level, the construction activities are expected to be fairly routine and straight forward. Static or dynamic pile load testing will be required to verify capacities. An aggregate mat should be placed stabilize the surface for the construction of the concrete mat.

The preliminary capacities provided above are for purposes of comparing potential foundation alternatives and should not be used for final design. After the design loads, final tank location, and tank elevations are provided to us, SME should reevaluate pile capacities, and provide design recommendations for deep foundation piles that will include more detailed information regarding pile design, installation, and load testing.

4.4 ENGINEERED FILL REQUIREMENTS

Any fill placed within pavement areas or areas of future development, including utility trench backfill, should be an approved material, free of frozen soil, organics, or other deleterious materials. If the proposed fill contains more than 4 percent organics, we recommend such materials not be used for engineered fill. The fill should be spread in level layers (lifts) not exceeding a thickness that can be suitably compacted throughout the entire lift with the compaction equipment used. The fill in structural areas should be compacted to a minimum of 95 percent of the maximum dry density as determined in accordance with the Modified Proctor test. In open or greenbelt areas, the backfill can be compacted to a minimum of 90 percent of the maximum dry density as determined in accordance with the Modified Proctor test. For trenches located adjacent to proposed or existing pavements, the granular trench backfill should be compacted to a minimum of 95 percent of the maximum dry density as determined in accordance with the Modified Proctor test up to at least the level of a 45-degree line extending downward from the edge of the adjacent pavement. Sand fill should be compacted with vibratory equipment, such as a hoe-pac or walk-behind plate compactor.

We recommend the engineered fill for trench backfill consist of on-site or imported granular materials meeting MDOT Class II or Class III specifications. The clays, silts, and organic soils (marl) encountered in the borings are not considered suitable for reuse as engineered fill. Some of the sand fill and natural sands may meet the requirements for MDOT Class II or Class III granular material and would therefore, be potentially suitable for reuse as pipe bedding, pipe cover, and trench backfill. Gradational analyses should be performed to confirm on-site soils meet the gradational requirements of MDOT Class II or Class III granular material. The contractor will need to exercise care to segregate sands planned for reuse as engineered fill from other excavated soils. Also, wet sands excavated from the sewer trench will need to be stockpiled and drained prior to reuse as engineered fill.

As indicated above in Section 4.2.2, wet conditions should be expected at the base of excavations. Where such conditions are encountered, a layer of coarse-crushed aggregate may be required for placement on the subgrade to protect the subgrade from disturbance and to form a stable construction base. The coarse-crushed aggregate used for this purpose should be a well graded material ranging in size from 1- to 3-inches and containing no more than 7 percent material finer than the No. 200 sieve. The crushed aggregate should be placed in lifts no greater than 1-foot in thickness and then worked or “charged” into the subgrade with the back-end of the excavator bucket until the subgrade suitably firms. The required thickness of this stabilization layer will depend on the severity of the groundwater conditions.

4.5 CONSTRUCTION CONSIDERATIONS

The project site is within a low-lying area along the St. Joseph River. Portions of the site are below or near the 100-year flood elevation. The contractor must provide for protection of the work area from damage during flood conditions.

The contractor should take precautions to protect adjacent utilities and other structures during construction. A pre-condition survey of existing structures and utilities adjacent to the work areas should be performed to document the conditions before construction. Sensitive improvements should be monitored during construction, especially during installation of sheet piling for excavation support (if utilized). Monitoring could also include measuring horizontal and vertical movements, and the placement of crack monitors to measure potential differences across existing cracks or separations. Vibration monitoring should be performed if driven piles are utilized as part of the work.

The contractor should be prepared to handle environmental conditions (soil and groundwater) encountered along the proposed sewer alignment, which may affect the excavation, removal, or disposal of soil; dewatering of excavations; due care; and health and safety of workers. Any environmental assessment reports prepared for this project should be made available for review by bidders and the successful contractor so that they may incorporate information and recommendations from these reports into their bid and work plan.

All excavations should be sloped, shored, or braced in accordance with MI-OSHA requirements. The contractor should provide an adequately constructed and braced shoring system for employees working in an excavation that may expose employees to the danger of moving ground. If material is stored or heavy equipment is operated near an excavation, stronger shoring must be used to resist the increased pressure due to the superimposed loads.

5. SIGNATURES

PREPARED BY:

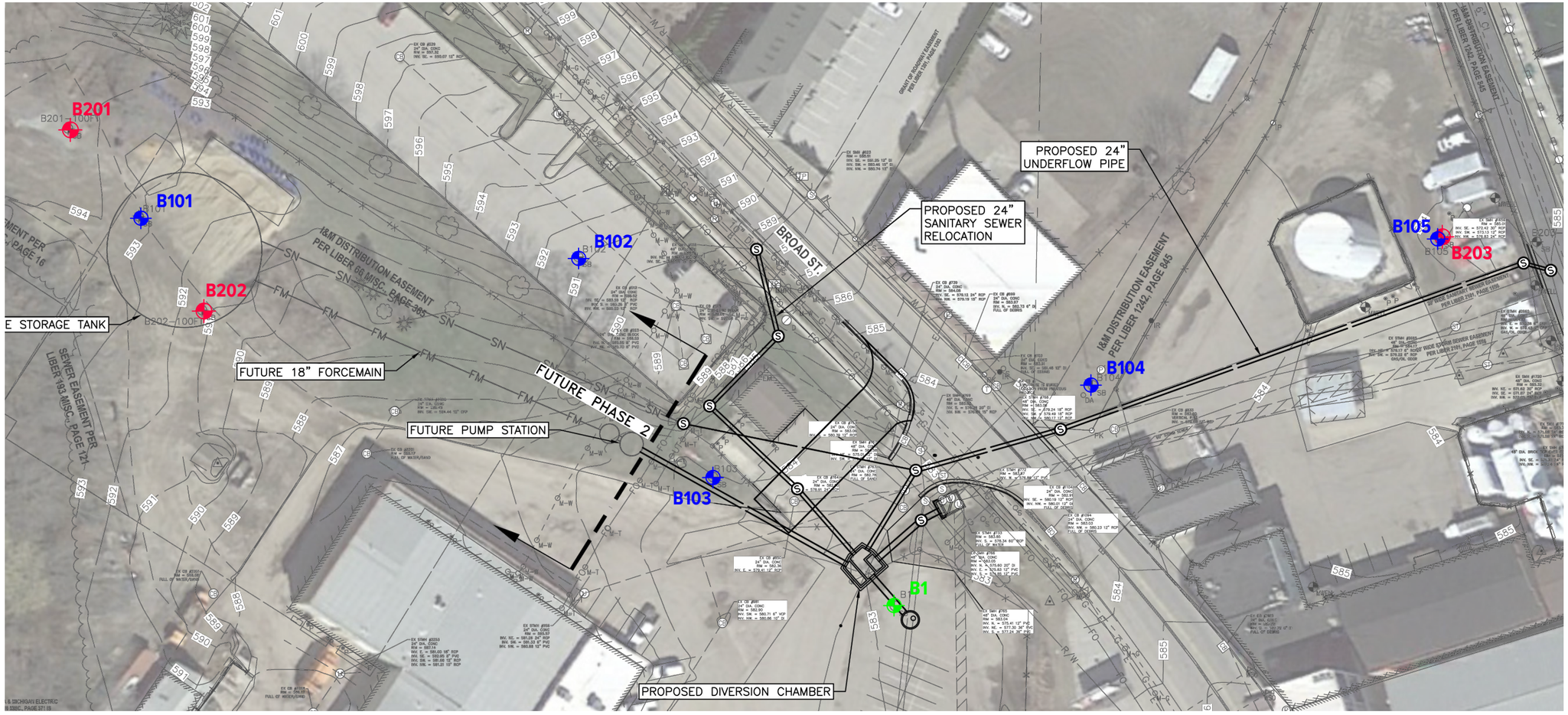
Aaron J. Reed, PE
Senior Consultant

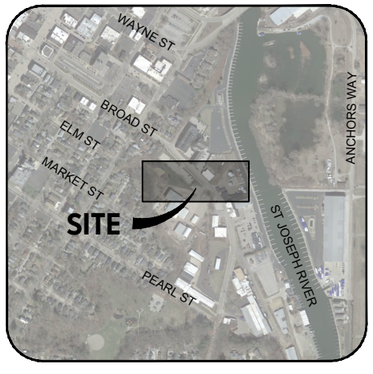
REVIEWED BY:

Timothy H. Bedenis, PE
Chief Geotechnical Engineer

APPENDIX A

BORING LOCATION DIAGRAM (FIGURE NO. 1)
BORING LOG TERMINOLOGY
SME PROJECT NO. 089742.01 BORING LOGS (B201 THROUGH B203)
SME PROJECT NO. 089742.00 BORING LOGS (B101 THROUGH B105)
SME PROJECT NO. 075169.00 BORING LOGS (B1)





LOCATION MAP
NOT TO SCALE

0' 60' 120'

GRAPHIC SCALE: 1" = 60'

LEGEND

- APPROXIMATE BORING LOCATION (SME PROJECT NO. 089742.01)
- APPROXIMATE BORING LOCATION (SME PROJECT NO. 089742.00)
- APPROXIMATE BORING LOCATION (SME PROJECT NO. 075169.00)

NOTES:
1. BASE DRAWING INFORMATION PROVIDED FROM A PDF FILE OF A DRAWING TITLED "PROPOSED CIVIL SITE PLAY LAYOUT OVERALL", SHEET C-300, DATED FEBRUARY 1, 2024, PREPARED BY WADE TRIM FOR THE "FINAL CSO COMPLIANCE - EARLY ACTION DESIGN", AND LABELED "EGLE 90%".

2. AERIAL IMAGE TAKEN FROM GOOGLE EARTH PRO WITH AN IMAGE DATE OF 03-19-2021.

SME
www.sme-usa.com

Project
CITY OF ST JOSEPH CSO FINAL COMPLIANCE

Project Location
ST JOSEPH, MICHIGAN

Sheet Name
BORING LOCATION DIAGRAM

No.	Revision Date
1	03/06/2024

Date 01-19-2024
CADD CRC
Designer AJR
Scale AS NOTED
Project 089742.01
Figure No. 1

BORING LOG TERMINOLOGY

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOIL (more than 50% of material is larger than No. 200 sieve size.)			
GRAVEL More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravel (Less than 5% fines)	GW	Well-graded gravel; gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravel; gravel-sand mixtures, little or no fines
	Gravel with fines (More than 12% fines)	GM	Silty gravel; gravel-sand-silt mixtures
		GC	Clayey gravel; gravel-sand-clay mixtures
SAND 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sand (Less than 5% fines)	SW	Well-graded sand; sand-gravel mixtures, little or no fines
		SP	Poorly graded sand; sand-gravel mixtures, little or no fines
	Sand with fines (More than 12% fines)	SM	Silty sand; sand-silt-gravel mixtures
		SC	Clayey sand; sand–clay-gravel mixtures
FINE-GRAINED SOIL (50% or more of material is smaller than No. 200 sieve size)			
SILT AND CLAY Liquid limit less than 50%		ML	Inorganic silt; sandy silt or gravelly silt with slight plasticity
		CL	Inorganic clay of low plasticity; lean clay, sandy clay, gravelly clay
		OL	Organic silt and organic clay of low plasticity
SILT AND CLAY Liquid limit 50% or greater		MH	Inorganic silt of high plasticity, elastic silt
		CH	Inorganic clay of high plasticity, fat clay
		OH	Organic silt and organic clay of high plasticity
HIGHLY ORGANIC SOIL		PT	Peat and other highly organic soil

OTHER MATERIAL SYMBOLS

Topsoil, Void, Sandstone, Asphalt Concrete, Glacial Till, Siltstone, Aggregate Base, Coal, Limestone, Portland Cement Concrete, Shale, Fill

LABORATORY CLASSIFICATION CRITERIA

GW	$C_U = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{D_{30}^2}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limits below "A" line or PI less than 4	Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limits above "A" line with PI greater than 7	
SW	$C_U = \frac{D_{60}}{D_{10}}$ greater than 6; $C_C = \frac{D_{30}^2}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for SW	
SM	Atterberg limits below "A" line or PI less than 4	Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols
SC	Atterberg limits above "A" line with PI greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent……GW, GP, SW, SP
More than 12 percent……GM, GC, SM, SC
5 to 12 percent……Cases requiring dual symbols

- SP-SM or SW-SM (SAND with Silt or SAND with Silt and Gravel)
- SP-SC or SW-SC (SAND with Clay or SAND with Clay and Gravel)
- GP-GM or GW-GM (GRAVEL with Silt or GRAVEL with Silt and Sand)
- GP-GC or GW-GC (GRAVEL with Clay or GRAVEL with Clay and Sand)

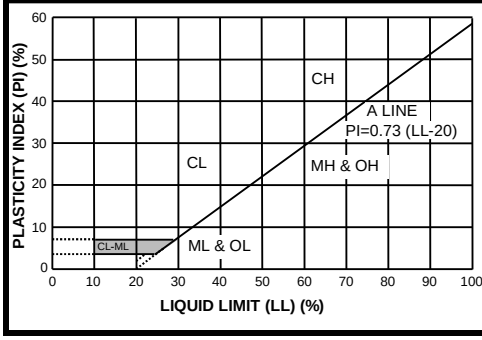
If the fines are CL-ML:

- SC-SM (SILTY CLAYEY SAND or SILTY CLAYEY SAND with Gravel)
- SM-SC (CLAYEY SILTY SAND or CLAYEY SILTY SAND with Gravel)
- GC-GM (SILTY CLAYEY GRAVEL or SILTY CLAYEY GRAVEL with Sand)

PARTICLE SIZES

Boulders	-	Greater than 12 inches
Cobbles	-	3 inches to 12 inches
Gravel- Coarse	-	3/4 inches to 3 inches
Fine	-	No. 4 to 3/4 inches
Sand- Coarse	-	No. 10 to No. 4
Medium	-	No. 40 to No. 10
Fine	-	No. 200 to No. 40
Silt and Clay	-	Less than (0.074 mm)

PLASTICITY CHART



VISUAL MANUAL PROCEDURE

When laboratory tests are not performed to confirm the classification of soils exhibiting borderline classifications, the two possible classifications would be separated with a slash, as follows:

For soils where it is difficult to distinguish if it is a coarse or fine-grained soil:

- SC/CL (CLAYEY SAND to Sandy LEAN CLAY)
- SM/ML (SILTY SAND to SANDY SILT)
- GC/CL (CLAYEY GRAVEL to Gravelly LEAN CLAY)
- GM/ML (SILTY GRAVEL to Gravelly SILT)

For soils where it is difficult to distinguish if it is sand or gravel, poorly or well-graded sand or gravel; silt or clay; or plastic or non-plastic silt or clay:

- SP/GP or SW/GW (SAND with Gravel to GRAVEL with Sand)
- SC/GC (CLAYEY SAND with Gravel to CLAYEY GRAVEL with Sand)
- SM/GM (SILTY SAND with Gravel to SILTY GRAVEL with Sand)
- SW/SP (SAND or SAND with Gravel)
- GP/GW (GRAVEL or GRAVEL with Sand)
- SC/SM (CLAYEY to SILTY SAND)
- GM/GC (SILTY to CLAYEY GRAVEL)
- CL/ML (SILTY CLAY)
- ML/CL (CLAYEY SILT)
- CH/MH (FAT CLAY to ELASTIC SILT)
- CL/CH (LEAN to FAT CLAY)
- MH/ML (ELASTIC SILT to SILT)

DRILLING AND SAMPLING ABBREVIATIONS

2ST	–	Shelby Tube – 2" O.D.
3ST	–	Shelby Tube – 3" O.D.
AS	–	Auger Sample
GS	–	Grab Sample
LS	–	Liner Sample
NR	–	No Recovery
PM	–	Pressuremeter
RC	–	Rock Core diamond bit. NX size, except where noted
SB	–	Split Barrel Sample 1-3/8" I.D., 2" O.D., except where noted
VS	–	Vane Shear
WS	–	Wash Sample

OTHER ABBREVIATIONS

WOH	–	Weight of Hammer
WOR	–	Weight of Rods
SP	–	Soil Probe
PID	–	Photo Ionization Device
FID	–	Flame Ionization Device

DEPOSITIONAL FEATURES

Parting	–	as much as 1/16 inch thick
Seam	–	1/16 inch to 1/2 inch thick
Layer	–	1/2 inch to 12 inches thick
Stratum	–	greater than 12 inches thick
Pocket	–	deposit of limited lateral extent
Lens	–	lenticular deposit
Hardpan/Till	–	an unstratified, consolidated or cemented mixture of clay, silt, sand and/or gravel, the size/shape of the constituents vary widely
Lacustrine	–	soil deposited by lake water
Mottled	–	soil irregularly marked with spots of different colors that vary in number and size
Varved	–	alternating partings or seams of silt and/or clay
Occasional	–	one or less per foot of thickness
Frequent	–	more than one per foot of thickness
Interbedded	–	strata of soil or beds of rock lying between or alternating with other strata of a different nature

DESCRIPTION OF RELATIVE QUANTITIES

The visual-manual procedure uses the following terms to describe the relative quantities of notable foreign materials, gravel, sand or fines:

Trace	–	particles are present but estimated to be less than 5%
Few	–	5 to 10%
Little	–	15 to 25%
Some	–	30 to 45%
Mostly	–	50 to 100%

CLASSIFICATION TERMINOLOGY AND CORRELATIONS

Cohesionless Soils

Relative Density	N_{60} (N-Value) (Blows per foot)
Very Loose	0 to 4
Loose	5 to 10
Medium Dense	11 to 30
Dense	31 to 50
Very Dense	51 to 80
Extremely Dense	Over 81

Cohesive Soils

Consistency	N_{60} (N-Value) (Blows per foot)	Undrained Shear Strength (kips/ft^2)
Very Soft	<2	0.25 or less
Soft	2 - 4	> 0.25 to 0.50
Medium	5 - 8	> 0.50 to 1.0
Stiff	9 - 15	> 1.0 to 2.0
Very Stiff	16 - 30	> 2.0 to 4.0
Hard	> 30	> 4.0 or greater

Standard Penetration 'N-Value' = Blows per foot of a 140-pound hammer falling 30 inches on a 2-inch O.D. split barrel sampler, except where noted. N60 values as reported on boring logs represent raw N-values corrected for hammer efficiency only.

SME

BORING B201

BORING DEPTH: 93.9 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance
PROJECT NUMBER: 089742.01
CLIENT: Wade Trim, Inc.
PROJECT LOCATION: St. Joseph, Michigan

DATE STARTED: 12/26/23 **COMPLETED:** 12/26/23 **BORING METHOD:** Hollow-stem Augers

DRILLER: MC (D&T Drilling) **RIG NO.:** B-57 (ATV) **LOGGED BY:** TAG **CHECKED BY:** AJR

ELEVATION: 594± FT

ELEVATION (FEET)	DEPTH (FEET)	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES
593.9	0.1	1 inch of ASPHALT MILLINGS			
		FILL- Sandy LEAN CLAY- Frequent Clayey Sand Layers- Occasional Slag Fragments- Black- Hard (CL)	SB1	16	10 10 10
590.0	4.0		SB2	14	4 3 1
		FILL- Fine to Medium SAND with Silt- Frequent Silty Clay Layers- Light Brown- Moist- Loose (SP-SM)	SB3	18	2 3 3
588.0	6.0				
		LEAN CLAY with Sand- Occasional Root Fibers- Grayish Brown to Gray- Stiff (CL)	SB4	18	2 3 3
581.0	13.0				
		SILTY CLAY- Gray- Medium (CL/ML)	SB5	18	0 0 1
576.0	18.0				
		Sandy LEAN CLAY- Wood Piece at 19.0 feet- Gray- Medium (CL)	SB6	18	0 0 0
571.0	23.0				
		LEAN CLAY with Sand- Occasional Wet Clayey Sand Layers- Gray- Very Stiff (CL)	SB7	18	1 2 3
			SB8	14	2 3 4

HAMMER EFFICIENCY: 80%
DATE: 9/16/2021
N_{60} -- ○

DRY DENSITY (pcf) -- ■
90 100 110 120

MOISTURE & ATTERBERG LIMITS (%)
PL MC LL
10 20 30 40

HAND PENE. ▽
TORVANE SHEAR ⊠
UNC. COMP. ●
VANE SHEAR (PK) ⊡
VANE SHEAR (REM) ×
TRIAXIAL (UU) ◈
SHEAR STRENGTH (KSF)
1 2 3 4

REMARKS

GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ **DURING BORING:**	24.5	569.5
▼ **AT END OF BORING:**	12.0	582.0
CAVE-IN OF BOREHOLE AT:	32.0	562.0

BACKFILL METHOD: Auger Cuttings

NOTES:
1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.
3. Wash water used in hollow-stem augers below a depth of 48.5 feet.

(Continued Next Page)

SME

BORING B201

BORING DEPTH: 93.9 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance

PROJECT NUMBER: 089742.01

CLIENT: Wade Trim, Inc.

PROJECT LOCATION: St. Joseph, Michigan

ELEVATION: 594± FT

ELEVATION (FEET)	DEPTH (FEET)	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES
	30	LEAN CLAY with Sand- Occasional Wet Clayey Sand Layers- Gray- Very Stiff (CL) *(continued)*			
561.0	33.0				
560	35	SANDY SILT- Gray- Wet- Dense (ML)	SB9	18	7 9 15
556.0	38.0				
555	40		SB10	18	5 7 9
550	45		SB11	18	8 15 19
545	50	Fine SILTY SAND- Gray- Wet- Medium Dense to Very Dense (SM)	SB12	18	19 18 24
540	55		SB13	14	21 20 21
534.5	59.5		SB14	18	11 17 19
535	60				
530	65	LEAN CLAY- Gray- Stiff to Very Stiff (CL)	SB15	18	5 6 8
525	70		SB16	18	7 9 10

HAMMER EFFICIENCY: 80%
DATE: 9/16/2021
N_{60} -- ○

DRY DENSITY (pcf) -- ■
90 100 110 120

MOISTURE & ATTERBERG LIMITS (%)
PL MC LL
10 20 30 40

HAND PENE. ▽
TORVANE SHEAR ⊠
UNC. COMP. ●
VANE SHEAR (PK) ⊡
VANE SHEAR (REM) ×
TRIAXIAL (UU) ⌖
SHEAR STRENGTH (KSF)
1 2 3 4

REMARKS

(Continued Next Page)

SME

BORING B201

BORING DEPTH: 93.9 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance

PROJECT NUMBER: 089742.01

CLIENT: Wade Trim, Inc.

PROJECT LOCATION: St. Joseph, Michigan

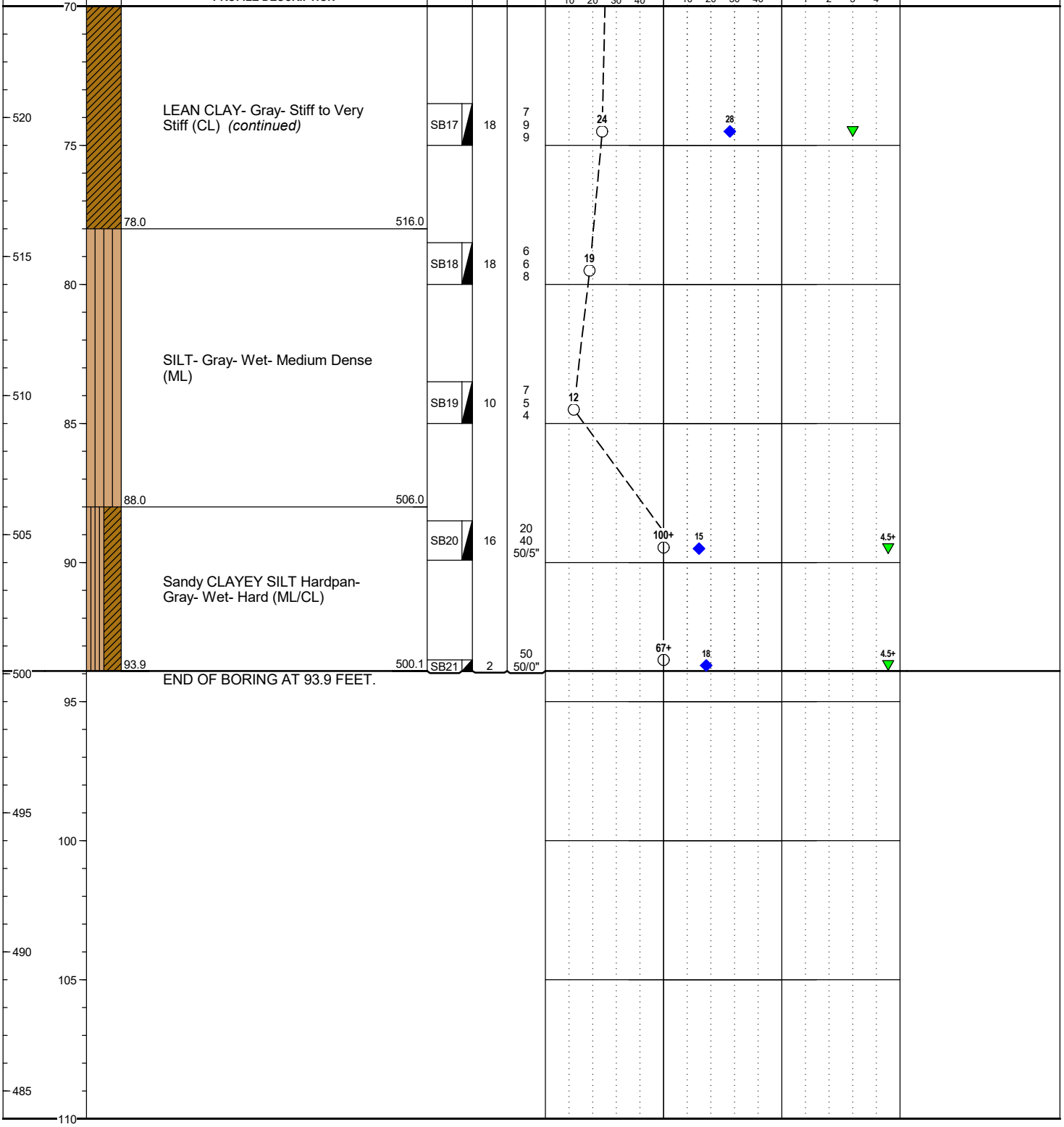
ELEVATION (FEET)	DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES	REMARKS
	70		ELEVATION: 594± FT				
520	75		LEAN CLAY- Gray- Stiff to Very Stiff (CL) *(continued)*	SB17	18	7 9 9	
	78.0						
516.0							
515	80		SILT- Gray- Wet- Medium Dense (ML)	SB18	18	6 6 8	
510	85			SB19	10	7 5 4	
	88.0						
506.0							
505	90		Sandy CLAYEY SILT Hardpan- Gray- Wet- Hard (ML/CL)	SB20	16	20 40 50/5"	
	93.9						
500.1				SB21	2	50 50/0"	
500	95		END OF BORING AT 93.9 FEET.				
495	100						
490	105						
485	110						

HAMMER EFFICIENCY: 80%
DATE: 9/16/2021
N_{60} -- ○

DRY DENSITY (pcf) -- ■
90 100 110 120

MOISTURE & ATTERBERG LIMITS (%)
PL MC LL
10 20 30 40

HAND PENE. ▽
TORVANE SHEAR ⊠
UNC. COMP. ●
VANE SHEAR (PK) ⊡
VANE SHEAR (REM) ×
TRIAXIAL (UU) ⊕
SHEAR STRENGTH (KSF)
1 2 3 4



1/25/24 3:56:07 PM

BORING B202

BORING DEPTH: 94.3 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance
PROJECT NUMBER: 089742.01
CLIENT: Wade Trim, Inc.
PROJECT LOCATION: St. Joseph, Michigan

DATE STARTED: 12/27/23 **COMPLETED:** 12/27/23 **BORING METHOD:** Hollow-stem Augers
DRILLER: MC (D&T Drilling) **RIG NO.:** B-57 (ATV) **LOGGED BY:** TAG **CHECKED BY:** AJR

ELEVATION: 591± FT

ELEV (FEET)	DEPTH (FEET)	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES	REMARKS
590	0					
		FILL- Fine to Coarse SAND with Silt and Gravel- Frequent Concrete Pieces- Brown- Moist to Wet- Extremely Dense to Loose (SP-SM)	SB1	14	28 17 8	
			SB2	10	18 47 25	
585	5		SB3	2	2 3 2	
	8.0	583.0				
		Fine to Medium SILTY SAND- Frequent Clayey Sand Seams- Gray- Wet- Very Loose (SM)	SB4	18	1 1 1	
580	10					
	12.0	579.0				
		ORGANIC SILT- Frequent Shell Fragments and Root Fibers- Gray (OL)	SB5	18	2 0 1	
575	15					
			SB6	0	0 1 1	No sample recovery at Sample SB6. Driller submitted an auger sample for classification purposes.
570	20					
			SB7	18	1 1 1	
565	25					
	27.0	564.0				
		Fine to Medium SILTY to CLAYEY SAND- Frequent Organic Silt Seams- Gray- Wet- Very Loose to Medium Dense (SM/SC)	SB8	18	2 1 2	
	30					

HAMMER EFFICIENCY: 80%
DATE: 9/16/2021
N_{60} -- ○

DRY DENSITY (pcf) -- ■
90 100 110 120

MOISTURE & ATTERBERG LIMITS (%)
PL MC LL
10 20 30 40

HAND PENE. ▽
TORVANE SHEAR ⊠
UNC. COMP. ●
VANE SHEAR (PK) ⊡
VANE SHEAR (REM) ×
TRIAXIAL (UU) ⊕
SHEAR STRENGTH (KSF)
1 2 3 4

GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	6.0	585.0
▼ AT END OF BORING:	6.5	584.5
CAVE-IN OF BOREHOLE AT:	19.0	572.0

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

(Continued Next Page)

SME

BORING B202

BORING DEPTH: 94.3 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance

PROJECT NUMBER: 089742.01

CLIENT: Wade Trim, Inc.

PROJECT LOCATION: St. Joseph, Michigan

ELEVATION: 591± FT

ELEVATION (FEET)	DEPTH (FEET)	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES	REMARKS
560	30	Fine to Medium SILTY to CLAYEY SAND- Frequent Organic Silt Seams- Gray- Wet- Very Loose to Medium Dense (SM/SC) *(continued)*	SB9	18	0 7 7	
555	35	SANDY SILT- Gray- Wet- Medium Dense to Loose (ML)	SB10	18	5 3 4	
550	40	LEAN CLAY- Gray- Stiff (CL)	SB11	18	12 11 6	
545	45	SANDY SILT- Gray- Wet- Medium Dense (ML)	SB12	18	7 7 10	
540	50		SB13	18	17 21 25	
535	55	Fine SILTY SAND- Gray- Wet- Medium Dense to Very Dense (SM)	SB14	12	7 4 5	
530	60		SB15	18	5 5 6	
525	65	LEAN CLAY- Gray- Very Stiff (CL)	SB16	18	6 7 10	
	70					

34.5 / 556.5 — 39.5 / 551.5 — 42.0 / 549.0 — 48.0 / 543.0 — 64.0 / 527.0

HAMMER EFFICIENCY: 80%
DATE: 9/16/2021
N_{60} -- ○

DRY DENSITY (pcf) -- ■
90 100 110 120

MOISTURE & ATTERBERG LIMITS (%)
PL MC LL
10 20 30 40

SPT BLOWS PER SIX INCHES
10 20 30 40

▽ HAND PENE.
⊠ TORVANE SHEAR
● UNC. COMP.
⊡ VANE SHEAR (PK)
× VANE SHEAR (REM)
⊕ TRIAXIAL (UU)

SHEAR STRENGTH (KSF)
1 2 3 4

(Continued Next Page)

SME

BORING B202

BORING DEPTH: 94.3 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance

PROJECT NUMBER: 089742.01

CLIENT: Wade Trim, Inc.

PROJECT LOCATION: St. Joseph, Michigan

ELEVATION (FEET)	DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES	REMARKS
520	70		ELEVATION: 591± FT				
			LEAN CLAY- Gray- Very Stiff (CL) *(continued)*	SB17	4	9 10 10	Driller reported driving a rock at Sample SB17.
515	75						
	78.5		512.5				
			SILT with Sand- Gray- Wet- Medium Dense to Loose (ML)	SB18	18	7 5 7	
510	80						
				SB19	18	3 4 3	
505	85						
	87.0		504.0				
			Sandy CLAYEY SILT Hardpan- Gray- Hard (ML/CL)	SB20	18	19 27 46	
500	90						
	94.3		496.7	SB21	10	39 50/4"	
495	95		END OF BORING AT 94.3 FEET.				
490	100						
485	105						
	110						

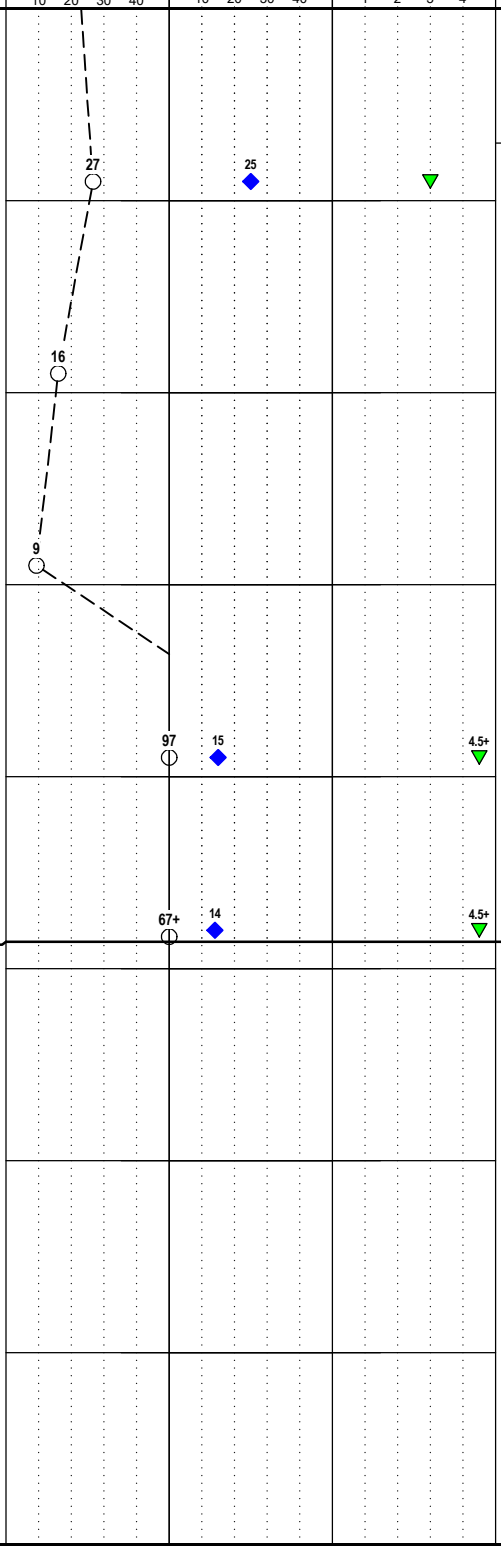
HAMMER EFFICIENCY: 80%
DATE: 9/16/2021
N_{60} -- ○

DRY DENSITY (pcf) -- ■
90 100 110 120

MOISTURE & ATTERBERG LIMITS (%)
PL MC LL
10 20 30 40

▽ HAND PENE.
⊠ TORVANE SHEAR
● UNC. COMP.
⊡ VANE SHEAR (PK)
× VANE SHEAR (REM)
⊕ TRIAXIAL (UU)

SHEAR STRENGTH (KSF)
1 2 3 4



SME

BORING B203

BORING DEPTH: 50 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance
PROJECT NUMBER: 089742.01
CLIENT: Wade Trim, Inc.
PROJECT LOCATION: St. Joseph, Michigan

DATE STARTED: 12/29/23 **COMPLETED:** 12/29/23 **BORING METHOD:** Hollow-stem Augers
DRILLER: MC (D&T Drilling) **RIG NO.:** B-57 (ATV) **LOGGED BY:** TAG **CHECKED BY:** AJR

ELEVATION: 584± FT

ELEV (FT)	DEPTH (FT)	PROFILE DESCRIPTION		SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES
	0	6 inches of SAND and GRAVEL	0.5 / 583.5			
		FILL- Fine to Medium CLAYEY SAND with Gravel- Occasional Slag Pieces- Gray and Black- Moist to Wet- Medium Dense (SM)	3.5 / 580.5	SB1	16	4 5 5
580	5	FILL- ORGANIC CLAY- Frequent Root Fibers- Black (OL)	6.0 / 578.0	SB2	18	1 1 1
				SB3	18	1 2 2
575	10	Fine to Medium CLAYEY SAND- Frequent Wood Pieces- Gray- Wet- Loose to Very Loose (SC)	13.5 / 570.5	SB4	16	2 1 1
570	15			SB5	8	1 2 4
		Fine to Medium SAND with Silt- Gray- Wet- Loose to Very Loose (SP-SM)	23.5 / 560.5	SB6	14	0 0 0
565	20					
560	25	Fine to Medium SILTY SAND- Wood Layer from 29.0 feet to 29.5 feet- Gray- Wet- Loose to Medium Dense (SM)	29.5 / 554.5	SB7	18	2 4 1
555	30			SB8	18	4 7 5

HAMMER EFFICIENCY: 80%
DATE: 9/16/2021
N_{60} -- ○

DRY DENSITY (pcf) -- ■ (90 100 110 120)
MOISTURE & ATTERBERG LIMITS (%) (PL MC LL; 10 20 30 40)

▽ HAND PENE.
⊠ TORVANE SHEAR
● UNC. COMP.
⊡ VANE SHEAR (PK)
× VANE SHEAR (REM)
◈ TRIAXIAL (UU)
SHEAR STRENGTH (KSF) (1 2 3 4)

REMARKS

Petroleum odors noted at Samples SB1 through SB7.

Sample SB2 was too disturbed to perform a shear strength test.

GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	3.0	581.0
▼ AT END OF BORING:	3.5	580.5
CAVE-IN OF BOREHOLE AT:	7.0	577.0

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

(Continued Next Page)

SME

BORING B203

BORING DEPTH: 50 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance

PROJECT NUMBER: 089742.01

CLIENT: Wade Trim, Inc.

PROJECT LOCATION: St. Joseph, Michigan

ELEVATION: 584± FT

PROFILE DESCRIPTION

Fine SILTY SAND- Gray- Wet- Loose to Medium Dense (SM) *(continued)*

50.0 534.0

END OF BORING AT 50.0 FEET.

SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES
SB9	16	2 2 3
SB10	10	2 3 5
SB11	18	5 5 6
SB12	18	9 10 6

HAMMER EFFICIENCY: 80%
DATE: 9/16/2021
N_{60} -- ○

DRY DENSITY (pcf) -- ■
MOISTURE & ATTERBERG LIMITS (%)
PL MC LL

HAND PENE.
TORVANE SHEAR
UNC. COMP.
VANE SHEAR (PK)
VANE SHEAR (REM)
TRIAXIAL (UU)
SHEAR STRENGTH (KSF)

REMARKS

SME

BORING B101

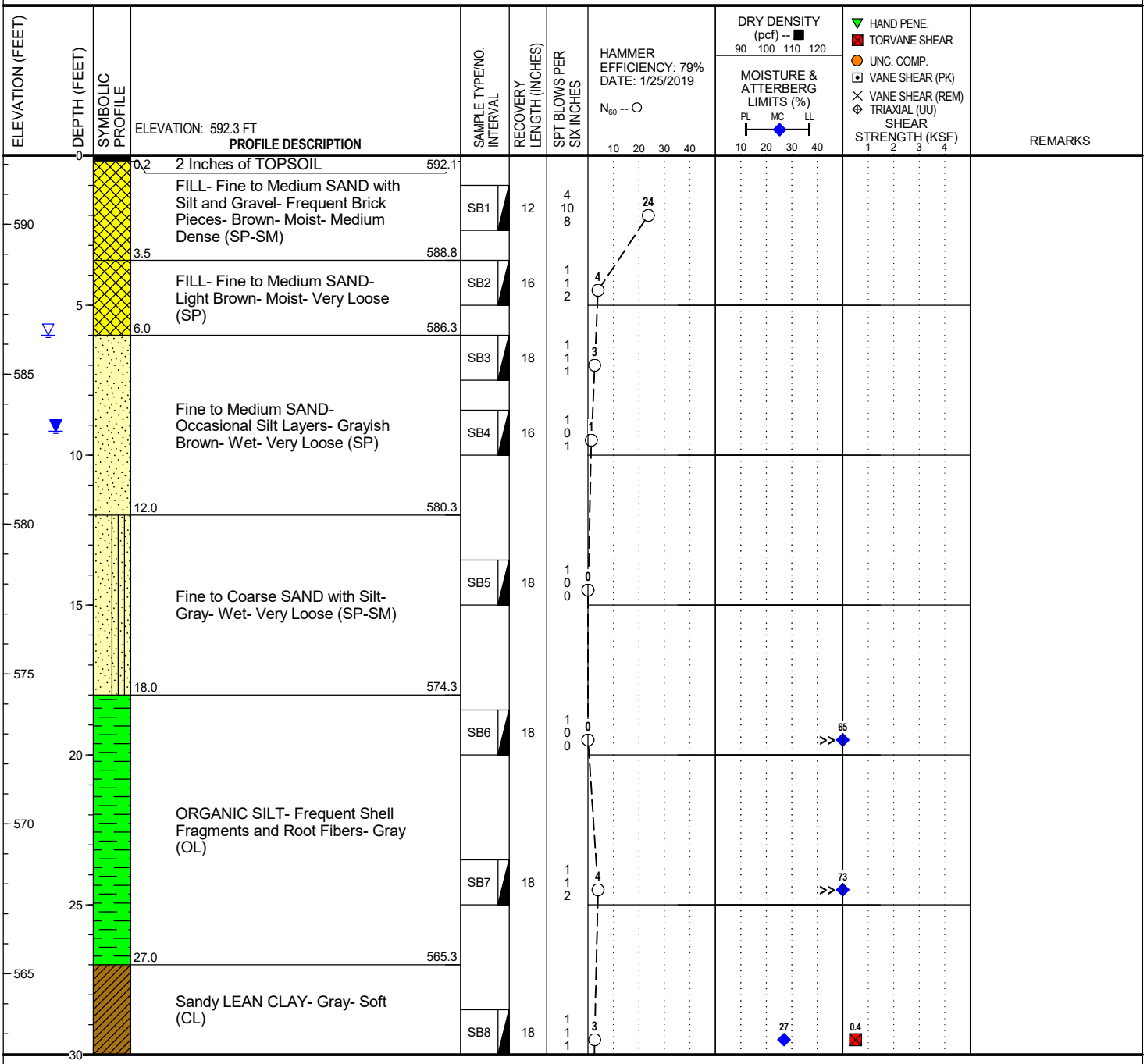
BORING DEPTH: 90 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance **PROJECT NUMBER:** 089742.00

CLIENT: Wade Trim, Inc. **PROJECT LOCATION:** St. Joseph, Michigan

DATE STARTED: 6/8/23 **COMPLETED:** 6/8/23 **BORING METHOD:** Hollow-stem Augers

DRILLER: DK (Stearns Drilling) **RIG NO.:** CME 55 LCX (Stearns) **LOGGED BY:** TAG **CHECKED BY:** AJR



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ **DURING BORING:**	6.0	586.3
▼ **AT END OF BORING:**	9.2	583.1
CAVE-IN OF BOREHOLE AT:	53.0	539.3

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

(Continued Next Page)

SME

BORING B101

BORING DEPTH: 90 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance

PROJECT NUMBER: 089742.00

CLIENT: Wade Trim, Inc.

PROJECT LOCATION: St. Joseph, Michigan

ELEVATION: 592.3 FT

ELEVATION (FEET)	DEPTH (FEET)	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES
560	30	Sandy LEAN CLAY- Gray- Soft (CL) *(continued)*			
	32.0				
560.3					
	35		SB9	17	1 1 0
555					
	40	Fine CLAYEY SAND to SANDY CLAY- Occasional Wood Pieces- Gray- Wet- Very Loose (SC/CL)	SB10	18	1 1 0
550					
	45		SB11	18	2 1 2
545					
544.8	47.5				
		Fine SAND- Light Brown- Wet- Medium Dense (SP)	SB12	16	4 6 7
	50				
540					
538.3	54.0		SB13	18	6 5 9
	55				
535		SILT with Sand- Occasional Silty Clay Layers- Gray- Wet- Medium Dense to Loose (ML)	SB14	18	5 4 3
	60				
530	62.0				
530.3					
	65	LEAN CLAY- Gray- Very Stiff (CL)	SB15	18	4 4 6
525					
	70		SB16	18	4 5 6

HAMMER EFFICIENCY: 79%
DATE: 1/25/2019
N_{60} -- ○

DRY DENSITY (pcf) -- ■
90 100 110 120

MOISTURE & ATTERBERG LIMITS (%)
PL MC LL
10 20 30 40

HAND PENE. ▽
TORVANE SHEAR ⊠
UNC. COMP. ●
VANE SHEAR (PK) ⊡
VANE SHEAR (REM) ×
TRIAXIAL (UU) ⊕
SHEAR STRENGTH (KSF)
1 2 3 4

REMARKS

(Continued Next Page)

SME

BORING B101

BORING DEPTH: 90 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance

PROJECT NUMBER: 089742.00

CLIENT: Wade Trim, Inc.

PROJECT LOCATION: St. Joseph, Michigan

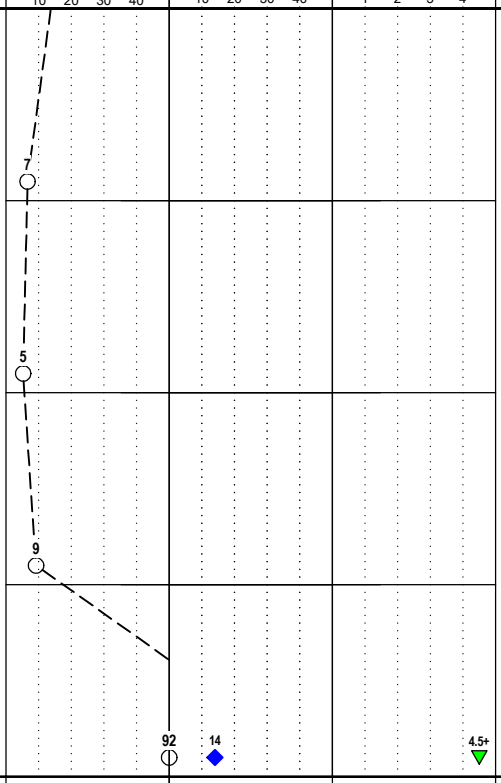
ELEVATION (FEET)	DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES	REMARKS
	70		ELEVATION: 592.3 FT				
520			LEAN CLAY- Gray- Very Stiff (CL) *(continued)*				
			72.0 / 520.3	SB17	18	3 3 2	
	75						
515			SANDY SILT- Gray- Wet- Loose (ML)	SB18	18	1 2 2	
	80						
510				SB19	18	2 3 4	
	85		86.5 / 505.8				
505			Sandy CLAYEY SILT Hardpan- Gray- Hard (ML/CL)	SB20	18	16 28 42	
	90		90.0 / 502.3				
			END OF BORING AT 90.0 FEET.				
500							
	95						
495							
	100						
490							
	105						
485							
	110						

HAMMER EFFICIENCY: 79%
DATE: 1/25/2019
N_{60} -- ○

DRY DENSITY (pcf) -- ■
90 100 110 120

MOISTURE & ATTERBERG LIMITS (%)
PL MC LL
10 20 30 40

HAND PENE. ▽
TORVANE SHEAR ⊠
UNC. COMP. ●
VANE SHEAR (PK) ⊡
VANE SHEAR (REM) ×
TRIAXIAL (UU) ⊕
SHEAR STRENGTH (KSF)
1 2 3 4



SME

BORING B102

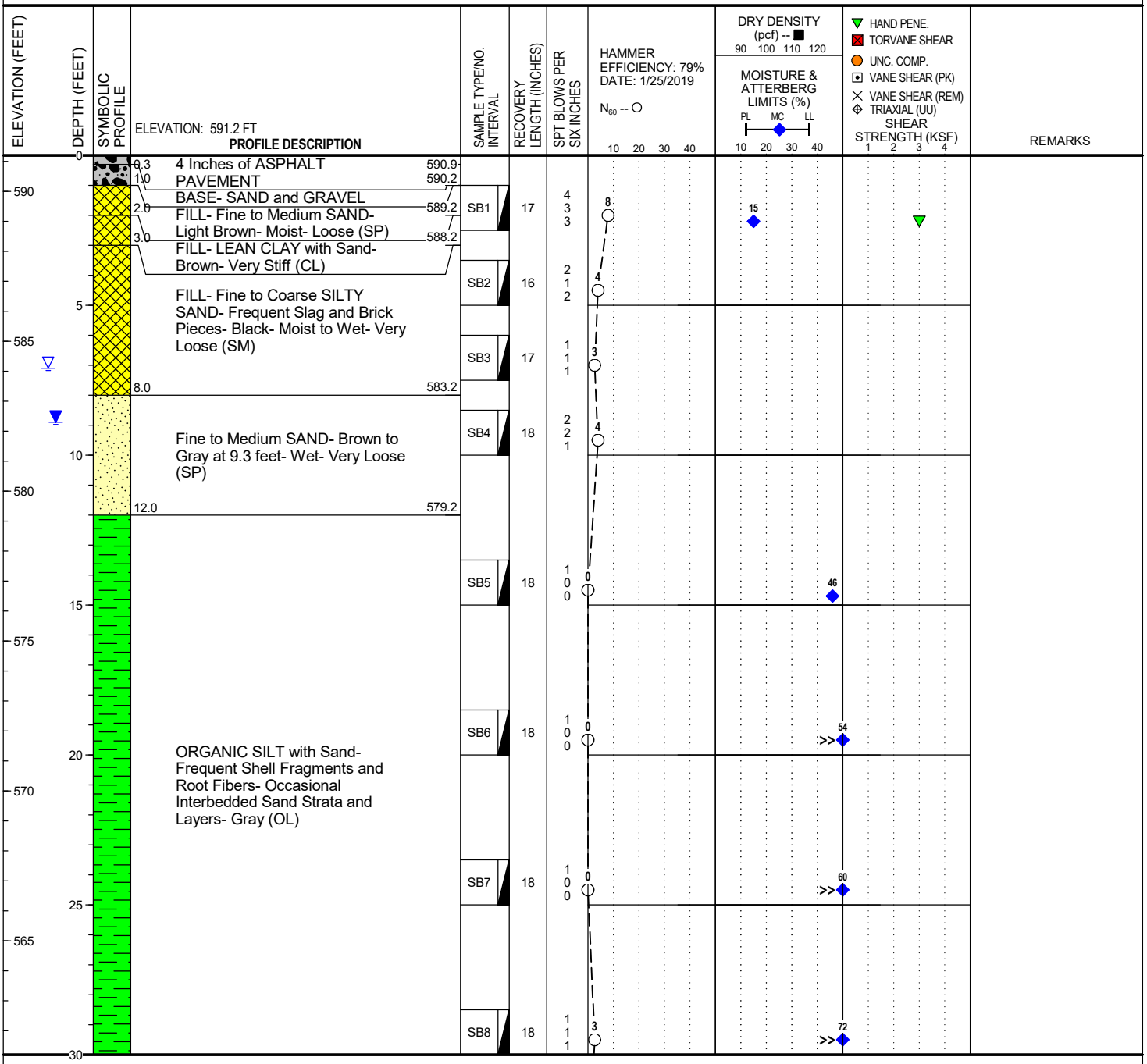
BORING DEPTH: 90 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance **PROJECT NUMBER:** 089742.00

CLIENT: Wade Trim, Inc. **PROJECT LOCATION:** St. Joseph, Michigan

DATE STARTED: 6/7/23 **COMPLETED:** 6/7/23 **BORING METHOD:** Hollow-stem Augers

DRILLER: DK (Stearns Drilling) **RIG NO.:** CME 55 LCX (Stearns) **LOGGED BY:** TAG **CHECKED BY:** AJR



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ **DURING BORING:**	7.1	584.1
▼ **AT END OF BORING:**	8.9	582.3
CAVE-IN OF BOREHOLE AT:	48.0	543.2

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

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SME

BORING B102

BORING DEPTH: 90 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance

PROJECT NUMBER: 089742.00

CLIENT: Wade Trim, Inc.

PROJECT LOCATION: St. Joseph, Michigan

ELEVATION: 591.2 FT

ELEVATION (FEET)	DEPTH (FEET)	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES
560	30	ORGANIC SILT with Sand- Frequent Shell Fragments and Root Fibers- Occasional Interbedded Sand Strata and Layers- Gray (OL) *(continued)*	SB9	18	1 0 0
555	35	37.0 / 554.2			
		SILTY CLAY- Gray- Stiff (CL/ML)	SB10	18	1 0 0
550	40	42.0 / 549.2			
		Fine SILTY SAND to Sandy Silt- Gray- Wet- Very Loose (SM/ML)	SB11	18	1 1 2
545	45	47.0 / 544.2			
		Fine SILTY SAND- Gray- Wet- Loose (SM)	SB12	16	1 3 5
540	50	52.5 / 538.7			
		SANDY SILT- Gray- Wet (ML)	SB13	14	6 5 6
535	55	54.0 / 537.2			
		LEAN CLAY- Occasional Clayey Silt Layers- Gray- Very Stiff to Stiff (CL)	SB14	16	4 4 4
530	60				
			SB15	18	4 8 10
525	65				
		69.5 / 521.7	SB16	18	3 5 5
	70				

HAMMER EFFICIENCY: 79%
DATE: 1/25/2019
N_{60} -- ○

DRY DENSITY (pcf) -- ■
90 100 110 120

MOISTURE & ATTERBERG LIMITS (%)
PL MC LL
10 20 30 40

HAND PENE. ▽
TORVANE SHEAR ⊠
UNC. COMP. ●
VANE SHEAR (PK) ⊡
VANE SHEAR (REM) ×
TRIAXIAL (UU) ⊕
SHEAR STRENGTH (KSF)
1 2 3 4

REMARKS

(Continued Next Page)

SME

BORING B102

BORING DEPTH: 90 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance

PROJECT NUMBER: 089742.00

CLIENT: Wade Trim, Inc.

PROJECT LOCATION: St. Joseph, Michigan

ELEVATION (FEET)	DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES	REMARKS
			ELEVATION: 591.2 FT				
520	70		CLAYEY SILT- Gray- Very Stiff (CL) *(continued)*				
	72.0		519.2				
			LEAN CLAY with Sand- Gray- Stiff (CL)	SB17	18	4 5 4	
	74.3		516.9				
515	75		Sandy SILT- Occasional Sand Layers- Gray- Wet- Loose (ML)	SB18	18	3 4 5	
510	80						
	83.8		507.4				
505	85		Sandy SILTY CLAY- Hardpand- Gray- Hard (CL/ML)	SB19	18	3 11 31	
	90.0		501.2	SB20	18	13 22 32	
	90		END OF BORING AT 90.0 FEET.				
500	95						
495	100						
490	105						
485	110						

HAMMER EFFICIENCY: 79%
DATE: 1/25/2019
N_{60} -- ○

DRY DENSITY (pcf) -- ■
90 100 110 120

MOISTURE & ATTERBERG LIMITS (%)
PL MC LL
10 20 30 40

▽ HAND PENE.
⊠ TORVANE SHEAR
● UNC. COMP.
⊡ VANE SHEAR (PK)
× VANE SHEAR (REM)
⊕ TRIAXIAL (UU)
SHEAR STRENGTH (KSF)
1 2 3 4

12 12 55 71
15 13 15
4.5+ 4.5+

SME

BORING B103

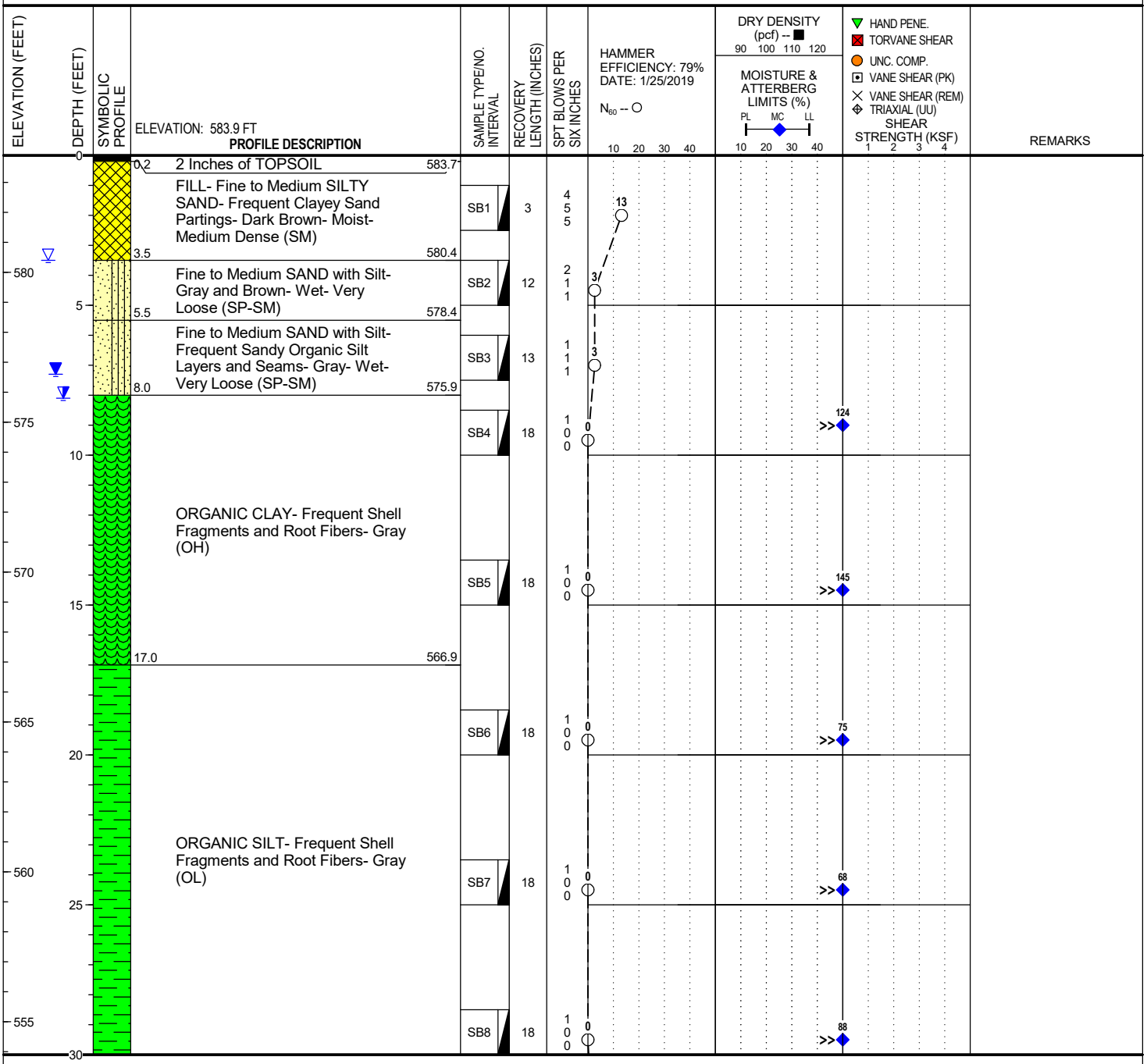
BORING DEPTH: 90 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance **PROJECT NUMBER:** 089742.00

CLIENT: Wade Trim, Inc. **PROJECT LOCATION:** St. Joseph, Michigan

DATE STARTED: 6/8/23 **COMPLETED:** 6/8/23 **BORING METHOD:** Hollow-stem Augers

DRILLER: DK (Stearns Drilling) **RIG NO.:** CME 55 LCX (Stearns) **LOGGED BY:** TAG **CHECKED BY:** AJR



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ **DURING BORING:**	3.5	580.4
▼ **AT END OF BORING:**	7.3	576.6
▼ **13 HRS AFTER BORING:**	8.1	575.8
CAVE-IN OF BOREHOLE AT:	50.3	533.6

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

(Continued Next Page)

SME

BORING B103

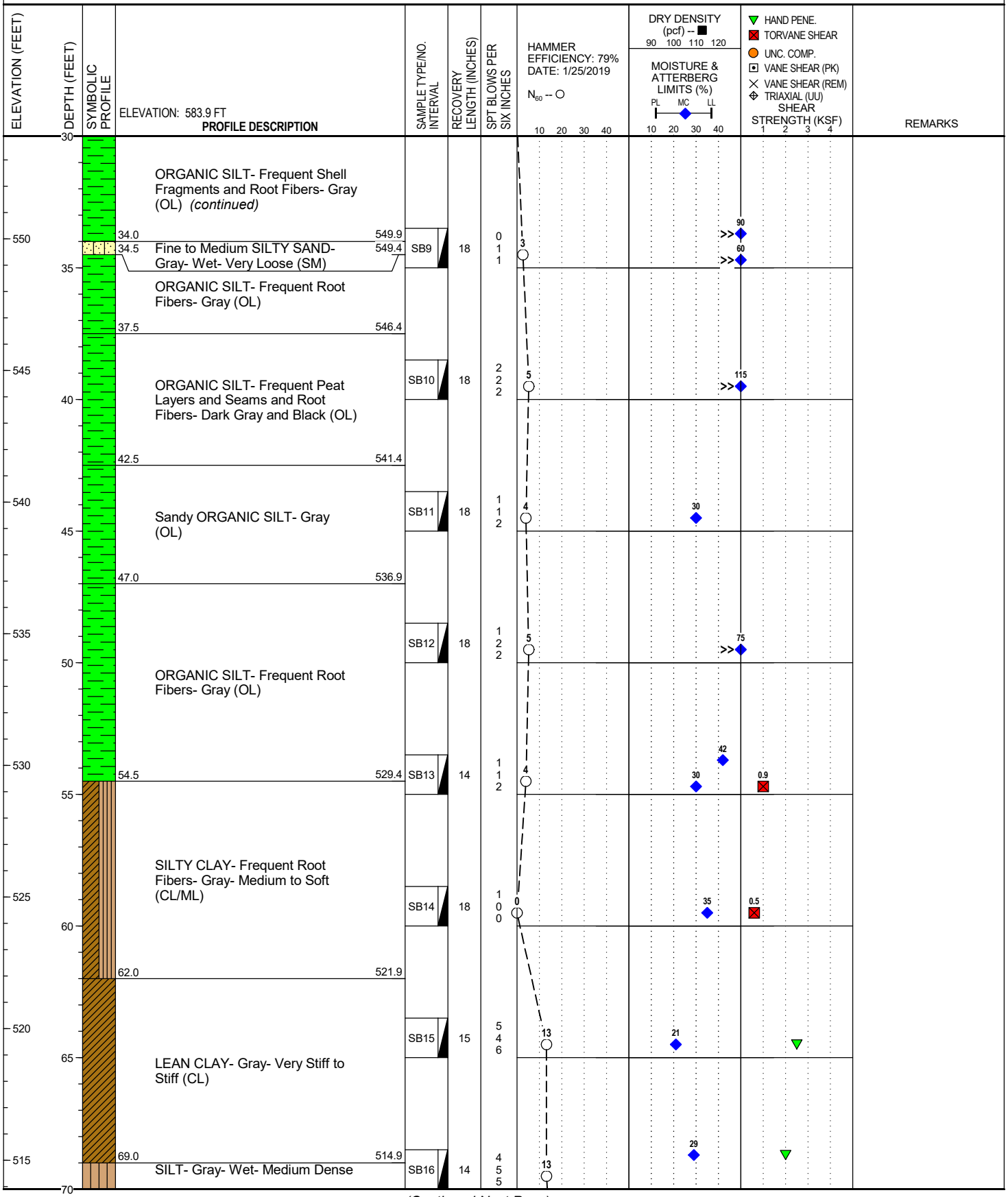
BORING DEPTH: 90 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance

PROJECT NUMBER: 089742.00

CLIENT: Wade Trim, Inc.

PROJECT LOCATION: St. Joseph, Michigan



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SME

BORING B103

BORING DEPTH: 90 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance

PROJECT NUMBER: 089742.00

CLIENT: Wade Trim, Inc.

PROJECT LOCATION: St. Joseph, Michigan

ELEVATION (FEET)	DEPTH (FEET)	SYMBOLIC PROFILE	ELEVATION: 583.9 FT PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES	HAMMER EFFICIENCY: 79% DATE: 1/25/2019 N_{60} -- ○	DRY DENSITY (pcf) -- ■ 90 100 110 120 / MOISTURE & ATTERBERG LIMITS (%) PL MC LL 10 20 30 40	HAND PENE. ▽ / TORVANE SHEAR ⊠ / UNC. COMP. ● / VANE SHEAR (PK) ⊡ / VANE SHEAR (REM) × / TRIAXIAL (UU) ⊕ SHEAR STRENGTH (KSF) 1 2 3 4	REMARKS
510	70		(ML)							
	75		SILT- Gray- Wet- Medium Dense (ML) *(continued)*	SB17	16	4 6 7	17 ○			
			77.0 / 506.9							
505			Fine SILTY SAND- Gray- Wet- Very Dense (SM)	SB18	18	12 20 22	55 ○	14 ◆	4.5+ ▽	
	80		79.5 / 504.4							
500			Sandy SILTY CLAY Hardpan- Silt Layer from 84 feet to 84.4 feet- Gray- Hard (CL/ML)	SB19	18	15 19 27	61 ○	14 ◆	4.5+ ▽	
	85									
495				SB20	17	12 22 26	63 ○	12 ◆	4.5+ ▽	
	90		90.0 / 493.9							
			END OF BORING AT 90.0 FEET.							
490	95									
485										
	100									
480										
	105									
475										
	110									

SME

BORING B104

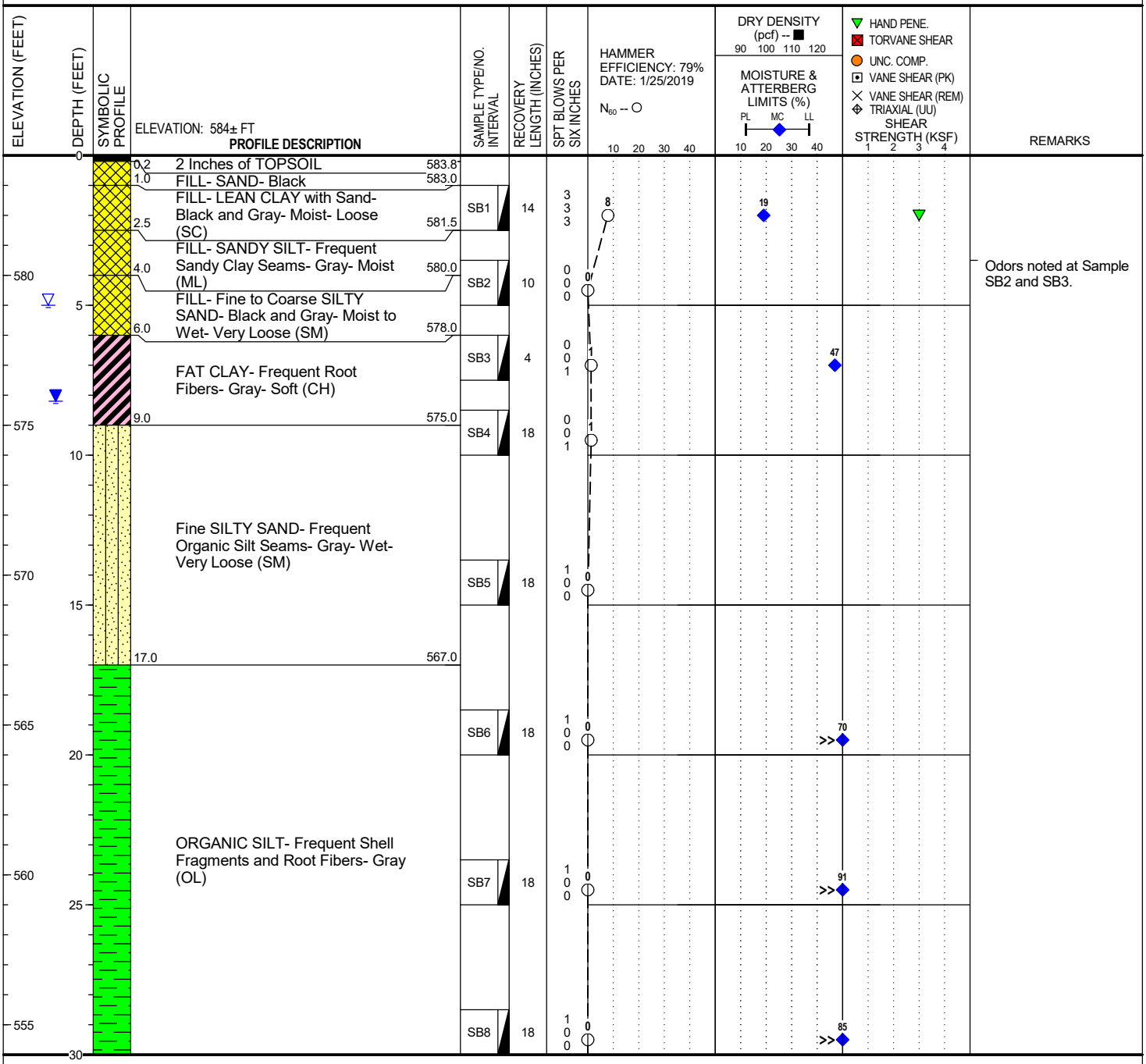
BORING DEPTH: 85 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance **PROJECT NUMBER:** 089742.00

CLIENT: Wade Trim, Inc. **PROJECT LOCATION:** St. Joseph, Michigan

DATE STARTED: 6/8/23 **COMPLETED:** 6/8/23 **BORING METHOD:** Hollow-stem Augers

DRILLER: DK (Stearns Drilling) **RIG NO.:** CME 55 LCX (Stearns) **LOGGED BY:** TAG **CHECKED BY:** AJR



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	5.0	579.0
▼ AT END OF BORING:	8.2	575.8
CAVE-IN OF BOREHOLE AT:	68.2	515.8

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

(Continued Next Page)

SME

BORING B104

BORING DEPTH: 85 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance

PROJECT NUMBER: 089742.00

CLIENT: Wade Trim, Inc.

PROJECT LOCATION: St. Joseph, Michigan

ELEVATION (FEET)	DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES	HAMMER EFFICIENCY: 79% DATE: 1/25/2019 N_{60} -- ○	DRY DENSITY (pcf) -- ■ 90 100 110 120 / MOISTURE & ATTERBERG LIMITS (%) PL MC LL 10 20 30 40	HAND PENE. ▽ TORVANE SHEAR ⊠ UNC. COMP. ● VANE SHEAR (PK) ⊡ VANE SHEAR (REM) × TRIAXIAL (UU) ◈ SHEAR STRENGTH (KSF) 1 2 3 4	REMARKS
550	30		ELEVATION: 584± FT				10 20 30 40			
	35		ORGANIC SILT- Frequent Shell Fragments and Root Fibers- Gray (OL) *(continued)*	SB9	18	1 0 0	0	>> 54		
545	40			SB10	18	1 0 0	0	>> 54		
540			44.2 / 539.8	SB11	18	0 1 2	4	39		
	45		Fine to Medium SILTY SAND- Frequent Organic Silt Layers and Seams- Gray- Wet- Loose (SM)							
535			47.0 / 537.0	SB12	18	0 1 1	3	47	0.5	
	50		SILTY CLAY- Gray- Soft (CL/ML)							
530			53.0 / 531.0	SB13	16	0 1 1	3			
	55		Fine to Medium SAND- Occasional Sandy Silt Layers- Gray- Wet- Very Loose to Loose (SP)							
525			59.5 / 524.5	SB14	18	2 2 2	5	26 34	0.5	The cohesive portion of Sample SB14 was too disturbed to perform a shear strength test.
	60		SILTY CLAY- Gray (CL/ML)							
520			62.0 / 522.0	SB15	18	1 3 3	8			
	65		Fine to Medium SAND- Gray- Wet- Loose (SP)							
515			69.5 / 514.5	SB16	18	1 2 3	7			
	70									

(Continued Next Page)

SME

BORING B104

BORING DEPTH: 85 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance

PROJECT NUMBER: 089742.00

CLIENT: Wade Trim, Inc.

PROJECT LOCATION: St. Joseph, Michigan

ELEVATION (FEET)	DEPTH (FEET)	SYMBOLIC PROFILE	ELEVATION: 584± FT PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES	HAMMER EFFICIENCY: 79% DATE: 1/25/2019 N_{60} -- ○ (10 20 30 40)	DRY DENSITY (pcf) -- ■ (90 100 110 120) MOISTURE & ATTERBERG LIMITS (%) PL MC LL (10 20 30 40)	HAND PENE. ▽ TORVANE SHEAR ⊠ UNC. COMP. ● VANE SHEAR (PK) ⊡ VANE SHEAR (REM) × TRIAXIAL (UU) ◈ SHEAR STRENGTH (KSF) (1 2 3 4)	REMARKS
510	70		SANDY SILT- Frequent Clay Seams- Gray- Wet- Loose (ML) *(continued)*							
			74.5 / 509.5	SB17	18	3 2 5	9			
	75		Fine SILTY SAND- Gray- Wet- Medium Dense (SP-SM)							
			77.0 / 507.0							
505			Fine to Coarse SAND with Silt- Gray- Medium Dense (SP-SM)							
			79.5 / 504.5	SB18	16	5 6 28	45			
	80		Fine SILTY SAND- Gray- Wet- Very Dense (SM)							
			81.0 / 503.0							
500			Sandy SILTY CLAY Hardpan- Gray- Hard (CL/ML)							
			85.0 / 499.0	SB19	16	31 26 37	83	13	4.5+	
	85		END OF BORING AT 85.0 FEET.							
495	90									
490	95									
485	100									
480	105									
475	110									

BORING B105

BORING DEPTH: 5 FEET

PROJECT NAME: City of St Joseph CSO Final Compliance **PROJECT NUMBER:** 089742.00

CLIENT: Wade Trim, Inc. **PROJECT LOCATION:** St. Joseph, Michigan

DATE STARTED: 6/9/23 **COMPLETED:** 6/9/23 **BORING METHOD:** Hollow-stem Augers

DRILLER: DK (Stearns Drilling) **RIG NO.:** CME 55 LCX (Stearns) **LOGGED BY:** TAG **CHECKED BY:** AJR

ELEVATION: 584± FT

ELEVATION (FEET)	DEPTH (FEET)	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES	REMARKS
584	0					
	0.3	4 Inches of GRAVEL- Limestone				
583.7		FILL- Fine to Coarse SILTY SAND with Gravel- Frequent Slag Pieces- Black- Moist- Medium Dense (SM)	SB1	16	9 11 7	Odors noted at Samples SB1 and SB2.
	2.0					
582.0		FILL- Fine to Medium SAND with Silt- Frequent Slag Pieces- Brown- Moist- Medium Dense (SP-SM)	SB2	14	3 1 2	
	3.5					
580.5						
580						
	5.0					
579.0	5	FILL- Fine to Coarse SILTY SAND with Gravel- Occasional Clayey Silt Layers- Black and Gray- Moist- Very Loose (SM)				
		END OF BORING AT 5.0 FEET.				
575	10					
570	15					
565	20					
560	25					
555	30					

HAMMER EFFICIENCY: 79%
DATE: 1/25/2019
N_{60} -- ○
10 20 30 40

DRY DENSITY (pcf) -- ■
90 100 110 120

MOISTURE & ATTERBERG LIMITS (%)
PL MC LL
10 20 30 40

SHEAR STRENGTH (KSF)
1 2 3 4

▽ HAND PENE.
⊠ TORVANE SHEAR
● UNC. COMP.
⊡ VANE SHEAR (PK)
× VANE SHEAR (REM)
◈ TRIAXIAL (UU)

GROUNDWATER & BACKFILL INFORMATION

GROUNDWATER WAS NOT ENCOUNTERED

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

SME

BORING B1

PROJECT NAME: City of St. Joseph - 2017 CSO Project
PROJECT NUMBER: 075169.00
CLIENT: The Abonmarche Group
PROJECT LOCATION: St. Joseph, Michigan

DATE STARTED: 9/22/16
COMPLETED: 9/22/16
BORING METHOD: Hollow-stem Augers
DRILLER: AM (Cook Drilling)
RIG NO.: D120
LOGGED BY: TAB
CHECKED BY: AJR

SURFACE ELEVATION: 583± FT

DEPTH (FEET)	ELEVATION (FEET)	PROFILE DESCRIPTION
0.3	582.7	3 inches of ASPHALT PAVEMENT
0.8	582.2	6-1/2 inches of AGGREGATE BASE- Fine to Coarse SAND with Silt and Gravel- Brown- Moist (SP-SM)
2.8	580.2	FILL- Fine to Medium SILTY SAND- Black- Moist- Loose (SM)
4.7	578.3	FILL- Fine to Medium SAND- Occasional Organic Clay Layers- Brown- Wet- Very Loose (SP)
8.0	575.0	ORGANIC SILTY CLAY- Frequent Roots- Gray- Soft (OL)
12.9	570.1	ORGANIC SILTY CLAY- Frequent Peat Layers and Seams and Roots- Gray- Soft (OL)
		ORGANIC CLAYEY SILT- Frequent Roots and Shell Fragments- Occasional Peat Layers and Seams- Gray- Soft to Medium (OH)

SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	BLOWS PER SIX INCHES	N-VALUE	MOISTURE (%)	TORVANE SHEAR STRENGTH (KSF)	REMARKS
AS1						
SB2	18	5-5-5	10			
SB3	14	1-1-1	2	59		The moisture content test result recorded at Sample SB3 was performed on a clay layer.
SB4	16	2-2-3	5	64	0.5	
SB5	8	3-2-2	4	108	0.4	
SB6	15	2-1-2	3	139	0.4	
SB7	18	1-0-0	0	99	0.3	
SB8	18	0-1-0	1	63	0.4	
SB9	18	1-0-0	0	72	0.3	
SB10	18	1-0-1	1	80	0.3	
SB11	15	1-1-1	2	39	0.6	
SB12	18	1-1-1	2	61	0.8	

Legend: DRY DENSITY (pcf) -- ■; N-VALUE -- ○; MOISTURE & ATTERBERG LIMITS (%) PL MC LL; SHEAR STRENGTH (KSF): ▽ HAND PENE., ⊠ TORVANE SHEAR, ○ UNC.COMP., ⊡ VANE SHEAR (PK), × VANE SHEAR (REM), ⊕ TRIAXIAL (UU)

GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	2.8	580.2
▼ AT END OF BORING:	2.6	580.4
CAVE-IN OF BOREHOLE AT:	16.7	566.3

BACKFILL METHOD: Auger Cuttings

NOTES:
1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.
2. The pavement was cored prior to advancing the boring.
3. Army Corps of Engineers DCP test was performed at this location. Refer to DCP data sheet for this boring.
4. Pavement thickness and the aggregate base thickness and description based on the pavement core and hand auger sampling at this location.
5. Groundwater observation at the end of the boring was recorded after auger removal.
6. The surface was capped with asphalt cold patch after backfilling the borehole.

(Continued Next Page)

SME

BORING B1

PROJECT NAME: City of St. Joseph - 2017 CSO Project

PROJECT NUMBER: 075169.00

CLIENT: The Abonmarche Group

PROJECT LOCATION: St. Joseph, Michigan

ELEVATION (FEET)	DEPTH (FEET)	SYMBOLIC PROFILE	SURFACE ELEVATION: 583± FT PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	BLOWS PER SIX INCHES	N-VALUE -- ○ (10 20 30 40)	DRY DENSITY (pcf) -- ■ (90 100 110 120) MOISTURE & ATTERBERG LIMITS (%) PL MC LL (10 20 30 40)	▽ HAND PENE. ☒ TORVANE SHEAR ○ UNC.COMP. ⊡ VANE SHEAR (PK) × VANE SHEAR (REM) ⊕ TRIAXIAL (UU) SHEAR STRENGTH (KSF) (1 2 3 4)	REMARKS
541.5	41.5									
540	45		Fine to Medium SAND- Gray- Wet- Loose (SP)	SB13	14	2 3 4	7			
536.0	47.0									
535	50		SILTY CLAY- Gray- Medium (CL/ML)	SB14	18	2 2 3	5	25	0.7	
531.0	52.0									
530	55		Fine to Medium SAND- Gray- Wet- Medium Dense (SP)	SB15	13	5 7 11	18			
525				SB16		6 8 11	19			
523.0	60		END OF BORING AT 60.0 FEET.							
520	65									
515	70									
510	75									
505	80									
500	85									
495	90									
490	95									

APPENDIX B

IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL-ENGINEERING REPORT

GENERAL COMMENTS

LABORATORY TESTING PROCEDURES

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

GENERAL COMMENTS

BASIS OF GEOTECHNICAL REPORT

This report has been prepared in accordance with generally accepted geotechnical engineering practices to assist in the design and/or evaluation of this project. If the project plans, design criteria, and other project information referenced in this report and utilized by SME to prepare our recommendations are changed, the conclusions and recommendations contained in this report are not considered valid unless the changes are reviewed, and the conclusions and recommendations of this report are modified or approved in writing by our office.

The discussions and recommendations submitted in this report are based on the available project information, described in this report, and the geotechnical data obtained from the field exploration at the locations indicated in the report. Variations in the soil and groundwater conditions commonly occur between or away from sampling locations. The nature and extent of the variations may not become evident until the time of construction. If significant variations are observed during construction, SME should be contacted to reevaluate the recommendations of this report. SME should be retained to continue our services through construction to observe and evaluate the actual subsurface conditions relative to the recommendations made in this report.

In the process of obtaining and testing samples and preparing this report, procedures are followed that represent reasonable and accepted practice in the field of soil and foundation engineering. Specifically, field logs are prepared during the field exploration that describe field occurrences, sampling locations, and other information. Samples obtained in the field are frequently subjected to additional testing and reclassification in the laboratory and differences may exist between the field logs and the report logs. The engineer preparing the report reviews the field logs, laboratory classifications, and test data and then prepares the report logs. Our recommendations are based on the contents of the report logs and the information contained therein.

REVIEW OF DESIGN DETAILS, PLANS, AND SPECIFICATIONS

SME should be retained to review the design details, project plans, and specifications to verify those documents are consistent with the recommendations contained in this report.

REVIEW OF REPORT INFORMATION WITH PROJECT TEAM

Implementation of our recommendations may affect the design, construction, and performance of the proposed improvements, along with the potential inherent risks involved with the proposed construction. The client and key members of the design team, including SME, should discuss the issues covered in this report so that the issues are understood and applied in a manner consistent with the owner's budget, tolerance of risk, and expectations for performance and maintenance.

FIELD VERIFICATION OF GEOTECHNICAL CONDITIONS

SME should be retained to verify the recommendations of this report are properly implemented during construction. This may avoid misinterpretation of our recommendations by other parties and will allow us to review and modify our recommendations if variations in the site subsurface conditions are encountered.

PROJECT INFORMATION FOR CONTRACTOR

This report and any future addenda or other reports regarding this site should be made available to prospective contractors prior to submitting their proposals for their information only and to supply them with facts relative to the subsurface evaluation and laboratory test results. If the selected contractor encounters subsurface conditions during construction, which differ from those presented in this report, the contractor should promptly describe the nature and extent of the differing conditions in writing and SME should be notified so that we can verify those conditions. The construction contract should include provisions for dealing with differing conditions and contingency funds should be reserved for potential problems during earthwork and foundation construction. We would be pleased to assist you in developing the contract provisions based on our experience.

The contractor should be prepared to handle environmental conditions encountered at this site, which may affect the excavation, removal, or disposal of soil; dewatering of excavations; and health and safety of workers. Any Environmental Assessment reports prepared for this site should be made available for review by bidders and the successful contractor.

THIRD PARTY RELIANCE/REUSE OF THIS REPORT

This report has been prepared solely for the use of our Client for the project specifically described in this report. This report cannot be relied upon by other parties not involved in the project, unless specifically allowed by SME in writing. SME also is not responsible for the interpretation by other parties of the geotechnical data and the recommendations provided herein.

LABORATORY TESTING PROCEDURES

VISUAL ENGINEERING CLASSIFICATION

Visual classification was performed on recovered samples. The appended General Notes and Unified Soil Classification System (USCS) sheets include a brief summary of the general method used visually classify the soil and assign an appropriate USCS group symbol. The estimated group symbol, according to the USCS, is shown in parentheses following the textural description of the various strata on the boring logs appended to this report. The soil descriptions developed from visual classifications are sometimes modified to reflect the results of laboratory testing.

MOISTURE CONTENT

Moisture content tests were performed by weighing samples from the field at their in-situ moisture condition. These samples were then dried at a constant temperature (approximately 110º C) overnight in an oven. After drying, the samples were weighed to determine the dry weight of the sample and the weight of the water that was expelled during drying. The moisture content of the specimen is expressed as a percent and is the weight of the water compared to the dry weight of the specimen.

HAND PENETROMETER TESTS

In the hand penetrometer test, the unconfined compressive strength of a cohesive soil sample is estimated by measuring the resistance of the sample to the penetration of a small calibrated, spring-loaded cylinder. The maximum capacity of the penetrometer is 4.5 tons per square-foot (tsf). Theoretically, the undrained shear strength of the cohesive sample is one-half the unconfined compressive strength. The undrained shear strength (based on the hand penetrometer test) presented on the boring logs is reported in units of kips per square-foot (ksf).

TORVANE SHEAR TESTS

In the Torvane test, the shear strength of a low strength, cohesive soil sample is estimated by measuring the resistance of the sample to a torque applied through vanes inserted into the sample. The undrained shear strength of the samples is measured from the maximum torque required to shear the sample and is reported in units of kips per square-foot (ksf).

LOSS-ON-IGNITION (ORGANIC CONTENT) TESTS

Loss-on-ignition (LOI) tests are conducted by first weighing the sample and then heating the sample to dry the moisture from the sample (in the same manner as determining the moisture content of the soil). The sample is then re-weighed to determine the dry weight and then heated for 4 hours in a muffle furnace at a high temperature (approximately 440º C). After cooling, the sample is re-weighed to calculate the amount of ash remaining, which in turn is used to determine the amount of organic matter burned from the original dry sample. The organic matter content of the specimen is expressed as a percent compared to the dry weight of the sample.

ATTERBERG LIMITS TESTS

Atterberg limits tests consist of two components. The plastic limit of a cohesive sample is determined by rolling the sample into a thread and the plastic limit is the moisture content where a 1/8-inch thread begins to crumble. The liquid limit is determined by placing a ½-inch thick soil pat into the liquid limits cup and using a grooving tool to divide the soil pat in half. The cup is then tapped on the base of the liquid limits device using a crank handle. The number of drops of the cup to close the gap formed by the grooving tool ½ inch is recorded along with the corresponding moisture content of the sample. This procedure is repeated several times at different moisture contents and a graph of moisture content and the corresponding number of blows is plotted. The liquid limit is defined as the moisture content at a nominal 25 drops of the cup. From this test, the plasticity index can be determined by subtracting the plastic limit from the liquid limit.

Passionate People Building
and Revitalizing our World

SME

Technical Summary Report and Due Care Plan

City of St. Joseph CSO Compliance Project
St. Joseph, Michigan

Point Blue No. D5090

31 January 2024

Prepared For:

Wade Trim
2851 Charlevoix Drive SE, Suite 108
Grand Rapids, Michigan 49546

Prepared By:

Point Blue, LLC
P.O. Box 304
St. Joseph, Michigan 49085
pointblu.com

Table of Contents

Appendices

Figures

Tables

Technical Summary Report and Due Care Plan

City of St. Joseph CSO Compliance Project
St. Joseph, Michigan

Project Number D5090
31 January 2024

1.0 INTRODUCTION

Point Blue, LLC (Point Blue) has been retained by Wade Trim to conduct a utility corridor investigation for the City of St. Joseph Combined Sewer Overflow (CSO) Compliance project in St. Joseph, Berrien County, Michigan (the project area). This investigation was conducted to evaluate potential soil and groundwater contamination present in the project area due to the historical use of the project area and surrounding properties for commercial and industrial purposes. This report summarizes the investigation activities conducted and the results of laboratory analysis of soil and groundwater samples collected from the project area.

1.1 Purpose

The purpose of this investigation was to evaluate the current soil and groundwater conditions for the presence of contaminants commonly associated with the historical use of the properties located at 1160, 1183, and 1223 Broad Street and the associated right-of-way of Broad Street for commercial and industrial purposes. Soil and groundwater sampling and analysis activities were conducted to determine whether regulated substances are present at concentrations in excess of screening levels established by the Michigan Department of Environment, Great Lakes, and Energy - Remediation and Redevelopment Division (EGLE-RRD) to be protective of human health and the environment. Worker personal protective equipment (PPE) and soil/groundwater management requirements have been based on the results of this investigation.

1.2 Location

The project area consists of three parcels of property located at 1160, 1183, and 1223 Broad Street and the associated right-of-way of Broad Street in St. Joseph, Berrien

County, Michigan (Township 4 South, Range 18 West, Sections 23 and 24). A Site Location Map is provided as Figure 1 in Appendix A.

1.3 Background

According to available information, the project area consisted of a marshy area in the early-1860s. A stream extended from the current Kiwanis Park area along the west side of Langley Avenue and Broad Street and discharged into the Morrison Channel between the Pri Mar Petroleum parcels (located at 1183 and 1207 Broad Street). From the early-1870s through the late-1890s, commercial development was present on the east side of Broad Street and included a flour mill (southeast of Marsh Street), a brick yard, a foundry, a paper mill (near Ann Street), and railroad tracks and spurs along the waterfront. The following paragraphs provide a historical summary for the parcels located in the project area (primarily along Broad Street) beginning in the early-1900s.

The City of St. Joseph, Department of Public Works (DPW) parcel (located at 1160 Broad Street) was historically occupied by a door manufacturer and associated rail spurs, a cold storage and fruit packing facility, residential dwellings, and the Berrien County Society for Crippled Children. The parcel has been utilized as the DPW since the mid-1950s.

The Berrien Artist Guild, Inc. parcel (located at 1101 Broad Street) has been occupied by a flour mill, a coal shed, a rail spur, and a box factory (from the mid-1910s until the mid-1980s). The building was vacant in the early-1990s and then was occupied by a bread mix company, a woodworking company, and a home builder. Since the early-2000s, the parcel has been utilized as the Box Factory For The Arts.

The Riverwalk at the Box Factory parcel (located at 1117 Broad Street) has been occupied by a residential dwelling, a carriage company, a box factory warehouse, an automobile garage, a factory building, a roofing company, and a metal shop. The parcel was redeveloped in the mid-2000s as condominiums and townhouses.

The City Plumbing & Heating parcel (located at 1121 Broad Street) was historically occupied by a foundry, a spray liquid manufacturer, a warehouse, a contractor's supply

yard, and a rail spur. The building was vacant (mid-1970s to early-1980s) and has been utilized for storage of plumbing supplies and sheet metal.

The Tailwinds Condominiums parcel (located at 1221 Broad Street) was historically occupied by a foundry, a vacant store, and an air conditioning contractor. The parcel was redeveloped as condominiums for residential use by the mid-2000s.

The Pri Mar Petroleum parcels (located at 1183 and 1207 Broad Street) have been utilized for bulk oil storage since the early-1930s. Additional business listed at the parcels by the mid-1970s include Quality Asphalt, Inc., Priebe Brothers Oil Company, Inc. Priebe Enterprises, and Priebe Transport.

The Leco Corporation parcel (located at 1223 Broad Street and including the waterfront areas) was historically occupied by a paper mill and oil house (southern portion), a planning mill (northern portion), and railroad tracks (along the waterfront). A boat manufacturer occupied the property (southern portion) in the early-1900s, and a foundry (1930s to mid-1940s). The former boat manufacturer buildings were utilized for industrial manufacturing and warehouse until the late-1970s when they were removed. The Leco Corporation redeveloped the property including asphalt parking lot areas associated with the Pier 33 Marina. The building at the parcel was more recently occupied by a marina contractor (early- to mid-1980s), Leco Financial (mid-1990s), and a sign company (2000s).

The adjoining properties to the project area were determined to be a concern based on the potential to encounter impacted soil and/or groundwater during the proposed installation of underground infrastructure proposed for the CSO Compliance project.

2.0 UTILITY CORRIDOR INVESTIGATION

2.1 Health and Safety Plan

In accordance with 29 CFR 1910.120, a site-specific health and safety plan was developed for the project area for use by Point Blue and its subcontractors. This plan was intended to provide safe working conditions for personnel at the site. The procedures and personal protective equipment requirements were established based on an evaluation of known site conditions as well as perceived or potential hazards. This plan was reviewed and acknowledged (by signature) by all workers involved with the field activities. Utilities were staked prior to initiation of subsurface activities (Miss Dig Ticket Nos. 2023120700681 and 2023120700705).

2.2 Soil Boring Locations and Methods

On 26 and 27 December 2023, investigation activities were conducted to evaluate potential soil and groundwater contamination associated with the historical use of the DPW parcel, the Pri Mar Petroleum, Inc. parcel, the LECO Corporation parcel, and nearby properties adjacent to the right-of-way of Broad Street. A total of twenty-two soil borings were performed in the project area to depths between 6.5 feet and 20 feet below ground level (bgl) for the collection of soil and groundwater samples. Soil borings GP-1 through GP-22 were advanced by North American Probing Services of Bannister, Michigan utilizing a truck-mounted, hydraulic soil probe (Geoprobe). Refusal was encountered (concrete and brick foundations) at soil boring locations GP-1 (at 6.5 feet bgl), GP-4 (between 2.5 feet and 6.5 feet bgl), GP-8 (at 9.5 feet bgl), and GP-12 (at 12 feet bgl). Soil borings GP-1 and GP-4 were moved several times in an attempt to drill to the pre-established target depth of 15 feet bgl. For data presentation and discussion, the locations have been grouped by location as indicated below:

- 1160 Broad Street (DPW and Broad Street Right-of-way) consists of soil borings GP-1 through GP-14.

- 1183 Broad Street (Pri Mar Petroleum, Inc. Parcel) consists of soil borings GP-15 through GP-22.

- 1223 Broad Street (Leco Corporation Parcel) did not include soil borings at the request of the owner.

Soil boring locations are presented on Figure 2 in Appendix A.

2.3 Proposed Underground Utility Corridor Sample Collection

Soil Sample Collection. Soil samples were continuously collected from each of the twenty-two soil borings utilizing new, disposable acetate liners and inspected in the field for the presence of adverse staining and/or odors. Soil samples were retained at regular intervals and screened in the field for the presence of residual organic vapors utilizing a calibrated photoionization detector (PID). The PID detects organic vapors through an ionization process which creates an electric current. The intensity of the current is depicted on a direct read meter corresponding to a concentration presented in parts per million (ppm) equivalent of isobutylene.

Point Blue personnel recorded boring logs during the performance of borehole activities which include sample and field screening data, soil characteristics (including color, grain size, moisture, and consistency), depth of the boring, and sampling techniques. Soil boring data collected during borehole advancement activities for GP-1 through GP-22 have been summarized in boring logs and are presented in Appendix B.

Soil samples were selected for laboratory analysis from the vadose zone at the soil borings based on field inspection (visual, olfactory, and PID screening) and data collection objectives to evaluate soil quality. The portions of the collected soil samples destined for analysis of volatile organic compounds (VOCs) were appropriately preserved with methanol in accordance with United States Environmental Protection Agency (USEPA) Method 5035. The portions of the collected soil samples destined for analysis of polynuclear aromatic hydrocarbons (PNAs), and Michigan List metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc) were transferred into new, pre-cleaned glass containers.

Groundwater Sample Collection. Saturated conditions (i.e., groundwater) were encountered between 3.5 feet and 17.5 feet bgl across the project area. Each of the soil

borings were advanced up to 5 feet into the groundwater for the collection of water samples utilizing a temporary well technique and a peristaltic pump.

All groundwater samples were collected in accordance with the USEPA Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells to ensure the collection of representative samples. Groundwater was purged at approximate low-flow rates between 0.200 and 0.450 liters/minute (L/min). Temperature, pH, specific conductivity, oxygen-reduction potential, and turbidity were continuously monitored during the purging process utilizing a multiparameter meter equipped with a closed, flow-through cell. The groundwater chemistry parameters were monitored and recorded until they stabilized prior to sample collection. The low-flow groundwater logs are presented in Appendix C.

The groundwater samples were transferred into new, laboratory supplied HDPE and/or glass containers. The sample portions intended for analysis of VOCs were preserved in the field utilizing hydrochloric acid. The sample portions intended for analysis of PNAs were transferred into two, 100 milliliter amber glass bottles. The sample portions intended for analysis of Michigan List metals were transferred into 250 milliliter plastic bottles and preserved with nitric acid.

Groundwater samples destined for analysis of perfluorinated alkyl acids (PFAS) and low-level mercury were collected using a modified version of the sampling methods described in the EGLE Low Level Mercury Sample Collection RRD SOP-36. These sampling methods, which are based on USEPA Method 1613E, meet/exceed the current EGLE Groundwater PFAS Sampling Guidance. The portion of the collected samples destined for analysis for PFAS were transferred into 1,000 milliliter HDPE containers. The portion of the collected samples destined for analysis for low level mercury were transferred into 500 milliliter glass containers. The portion of the groundwater samples destined for analysis for phenolics, oil and grease, and polychlorinated biphenyls (PCBs) were transferred into 1-liter amber glass bottles.

Waste Characterization Soil Sample Collection. Two composite soil samples (Comp-1[S] and Comp-2[S]) were collected during the project area investigation activities for the purpose of characterizing soil for potential disposal. The waste characterization soil

samples were generated from sample splits collected from the discrete soil samples at each soil boring location. The split samples were then composited by location/group of soil borings. Specifically, soil sample Comp-1(S) was a composite of soil samples collected from soil borings GP-1 through GP-12 and soil sample Comp-2(S) was a composite of soil samples collected from soil borings GP-15 through GP-22.

The portions of the collected composite soil samples destined for analysis of VOCs were appropriately preserved with methanol in accordance with USEPA Method 5035. The portions of the collected soil samples destined for analysis of reactivity, corrosivity, ignitability, PNAs, and Toxic Characteristic Leaching Procedure (TCLP) metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc) were transferred into new, pre-cleaned glass containers.

Following appropriate preservation activities, samples collected were immediately placed in an ice-filled cooler. The samples were subsequently delivered to Trace Analytical Laboratories of Muskegon, Michigan, by a laboratory courier under chain of custody (COC) documentation for chemical analysis.

Soil borings were backfilled with bentonite chips and cuttings from the soil boring and sealed with asphalt/concrete patch or topsoil to match existing conditions. All downhole equipment was decontaminated between boring locations.

Boring logs were recorded during the performance of borehole activities which include sample and field screening data, soil characteristics (including color, grain size, moisture, and consistency), depth of the boring, and drilling/sampling techniques. The soil boring logs are presented as Appendix B.

2.4 Laboratory Analysis

The portions of the collected soil samples from each soil boring were analyzed for the presence of VOCs utilizing USEPA Method 8260D, PNAs utilizing USEPA Method 8270E, and metals utilizing USEPA Methods 7471B and 6020B. Composite soil samples were analyzed for VOCs and PNAs utilizing the referenced methods as well as for reactivity utilizing USEPA Method Chapter 7.3, corrosivity utilizing USEPA Method 9045D, and

ignitability utilizing USEPA Method 1010B. TCLP analysis was completed utilizing USEPA Methods 6010D and 7470A.

The portions of the collected groundwater samples from each soil boring were analyzed for the presence of VOCs utilizing USEPA Method 8260D, PNAs utilizing USEPA Method 8270E, and metals utilizing USEPA Methods 7470A and 6020B. Select groundwater samples were also analyzed for the presence of PCBs and pesticides utilizing USEPA Method 608, oil and grease utilizing USEPA Method 1664B, total phenolics utilizing USEPA Method 420.1, low-level mercury utilizing USEPA Method 1631E, metals utilizing USEPA Methods 7470A and 6020B, and PFAS utilizing USEPA Method 537.1 Modified.

3.0 RESULTS AND DISCUSSION

3.1 Soil Stratigraphy

The soils encountered across the project area generally consist of urban fill (e.g., topsoil/sand with varying amounts of cinders, brick, miscellaneous debris, and concrete) to depths ranging from 1 to 8 feet bgl. The urban fill overlies former floodplain soils that consist of interbedded layers of sands, silts, and clays with varying amounts of organic material (e.g., wood and shells) to depths of more than 15 feet bgl (maximum depth of borehole advancement). Saturated conditions (groundwater) varied based on ground surface elevation, but generally were encountered between 3.5 feet bgl and 17.5 feet bgl. The soil boring logs are presented as Appendix B.

3.2 Soil Sample Results

A total of 146 discrete soil samples were collected during the performance of investigative activities, inspected for evidence of adverse impact (visual/olfactory), and screened in the field utilizing a calibrated PID for the presence of residual organic vapors. Concentrations of residual organic vapors were detected in 22 of the 146 soil samples screened. Specifically, PID readings ranged from 1.0 ppm to 400 ppm at varying depths in soil borings GP-15, GP-16, GP-17, GP-18, GP-19, and GP-20. PID readings are summarized on the soil boring logs presented in Appendix B.

Laboratory analytical results for soil have been compared to the Generic Residential Cleanup Criteria (GRCC) established in Table 2 - Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels (as set forth by the EGLE-RRD) for Drinking Water Protection (DWP), Groundwater Surface Water Interface Protection (GSIP), Direct Contact (DC), Particulate Soil Inhalation Criteria (PSIC), and Statewide Default Background Levels (SDBLs). Laboratory analytical results for soil have also been compared to Generic Nonresidential Cleanup Criteria (GNRCC) established in Table 3 - Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels for DWP, GSIP, DC, Infinite Source Volatile Soil Inhalation Criteria (VSIC), PSIC, and the calculated SDBLs.

Based on the proximity of the project area to the municipal source of drinking water (Lake Michigan), the GSIP criteria for barium, cadmium, chromium, copper, lead, and zinc were calculated utilizing the Calculation of Generic Facility Specific Part 201 Soil GSI Protection Criteria spreadsheet provided by EGLE. The hardness of 145 mg of $CaCO_3$ and a pH of 8.1 for the receiving water body (Lake Michigan) were obtained from the raw water data presented in the May 2021 City of St. Joseph Water Filtration Plan report (https://www.sjcity.com/water/page/water-filtration-plant-monthly-reports-2021).

Metals: Mercury was detected in one of the 23 soil samples analyzed at concentrations ranging from 0.070 mg/kg to 0.19 mg/kg. The concentration detected in soil sample GP-6(3') exceeds the SDBL of 0.13 mg/kg and the GSIP criterion of 0.050 mg/kg.

Arsenic was detected in 17 of the 23 soil samples analyzed at concentrations ranging from 2.0 mg/kg to 170 mg/kg. The concentration of 170 mg/kg detected in soil sample GP-22(2') exceeds the SDBL of 5.8 mg/kg, the GRCC for DWP and GSIP criteria of 4.6 mg/kg, and the GRCC for DC of 7.6 mg/kg. The concentration detected also exceeds the GNRCC for DC of 37 mg/kg. The concentration of 35 mg/kg detected in soil sample GP-7(3') exceeds the SDBL and GRCC for DWP, GSIP, and DC. The concentration of 6.4 mg/kg detected in soil sample GP-3(2.5') exceeds the SDBL and the GRCC for DWP and GSIP criterion.

Chromium was detected in 22 of the 23 soil samples analyzed at concentrations ranging from 2.4 mg/kg to 45 mg/kg. The concentration detected in soil sample GP-7(3') exceeds the SDBL of 18 mg/kg and the GRCC and GNRCC for DWP of 30 mg/kg.

Selenium was detected in 20 of the 23 soil samples analyzed at concentrations ranging from 0.58 mg/kg to 5.0 mg/kg. Each of the concentrations detected exceeds the SDBL of 0.41 mg/kg and the GSIP criterion of 0.40 mg/kg. The levels reported in soil sample GP-21(2') exceed the GRCC and GNRCC for DWP of 4 mg/kg.

Zinc was detected in each of the soil samples analyzed at concentrations ranging from 6.5 mg/kg to 230 mg/kg. The concentration of 230 mg/kg detected in soil samples GP-6(3') and GP-22(2') exceeds the SDBL of 47 mg/kg and the calculated GSIP criterion of 140 mg/kg.

Additional metals including barium, cadmium, copper, and lead were detected in the soil samples at concentrations below the SDBL and/or all applicable GRCC and GNRCC.

VOCs: Tetrachloroethene (PCE) was detected in one soil sample analyzed at a concentration of 130 µg/kg. The concentration detected in soil sample GP-1(4') exceeds the GRCC and GNRCC for DWP of 100 µg/kg.

n-Butylbenzene was detected in 6 of the 23 soil samples at concentrations ranging from 55 µg/kg to of 3,400 µg/kg. The concentration detected of 3,400 µg/kg in soil sample GP-19(5') exceeds the GRCC for DWP of 1,600 µg/kg.

2-methylnaphthalene was detected utilizing USEPA Method 8260D in 5 of the 23 soil samples at concentrations ranging from 810 µg/kg to 7,800 µg/kg. The concentration detected in soil sample GP-19(5') exceed the GSIP criterion of 4,200 µg/kg.

Additional VOCs including cyclohexane, toluene, chlorobenzene, ethylbenzene, xylenes, isopropylbenzene, 1,3,5-trimethylbenzene (135-TMB), n-propylbenzene, t-butylbenzene, 1,2,4-trimethylbenzene (124-TMB), sec-butylbenzene, and/or 1,2,3-trimethylbenzene (123-TMB) were detected in soil samples GP-17(4'), GP-18(5'), GP-19(5'), GP-20(4'), and GP-21(2') at concentrations below all applicable GRCC and GNRCC.

PNAs: Naphthalene was detected in 2 of the 23 soil samples at concentrations of 330 µg/kg and 940 µg/kg. The concentration detected in soil sample GP-1(4') exceeds the GSIP criterion of 730 µg/kg.

2-methylnaphthalene was detected in 3 of the 23 soil samples utilizing USEPA Method 8270E at concentrations ranging from 350 µg/kg to 10,000 µg/kg. The concentration detected in soil sample GP-19(5') exceeds the GSIP criterion of 4,200 µg/kg.

Fluorene was detected in 3 of the 23 soil samples at concentrations ranging from 570 µg/kg to 13,000 µg/kg. The concentration detected in soil sample GP-19(5') exceeds the GSIP criterion of 5,300 µg/kg.

Phenanthrene was detected in 7 of the 23 soil samples at concentrations ranging from 540 µg/kg to 34,000 µg/kg. The concentrations detected in soil samples GP-1(4'), GP-2(3'), GP-6(3'), and GP-19(5') exceed the GSIP criterion of 2,100 µg/kg. It is noted that the duplicate soil sample collected at the GP-20 location (GP-20[4'] Dup.) also exceeds the GSIP criterion.

Fluoranthene was detected in 4 of the 23 soil samples at concentrations ranging from 1,300 µg/kg to 14,000 µg/kg. The concentration detected in soil sample GP-2(3') exceeds the GSIP criterion of 5,500 µg/kg.

Benzo(a)pyrene was detected in 4 of the 23 soil samples at concentrations ranging from 570 µg/kg to 5,800 µg/kg. The concentration detected in soil sample GP-2(3') exceeds the GRCC for DC of 2,000 µg/kg but is below the GNRCC for DC of 8,000 µg/kg.

Additional PNAs including acenaphthene, anthracene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene were detected in the soil samples at concentrations below all GRCC and GNRCC.

The results of laboratory analysis performed on soil samples have been tabulated and are summarized (with corresponding SDBL, GRCC, and GNRCC) in Table 1 in Appendix D. Soil sample results are summarized in Figure 3 in Appendix A. Laboratory analytical data, complete with COC documentation, are presented as Appendix E.

3.3 Groundwater Sample Results

Laboratory analytical results for groundwater samples have been compared to GRCC and GNRCC established in Table 1 – Groundwater: Residential and Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels (as set forth by the EGLE-RRD) for Drinking Water (DW) and Groundwater Surface Water Interface (GSI).

Based on the proximity of the project area to the municipal source of drinking water (Lake Michigan), the GSI criteria for barium, cadmium, chromium, copper, lead, and zinc were calculated utilizing the Calculation of Generic Facility Specific Part 201 Soil GSI

Protection Criteria spreadsheet provided by EGLE. The hardness of 145 mg of $CaCO_3$ and a pH of 8.1 for the receiving water body (Lake Michigan) were obtained from the raw water data presented in the May 2021 City of St. Joseph Water Filtration Plan report (https://www.sjcity.com/water/page/water-filtration-plant-monthly-reports-2021).

Metals: Mercury was detected in one of the 14 groundwater samples analyzed at a concentration of 0.00036 mg/L. The concentration detected in groundwater sample GP-14 exceeds the GSI criterion of 0.0000013 mg/L.

Arsenic was detected in 6 of the 14 groundwater samples at concentrations ranging from 0.0064 mg/L to 0.071 mg/L. The concentrations detected in groundwater samples GP-14 and GP-22 exceed the GRCC and GNRCC for DW and the GSI criterion of 0.01 mg/L.

Barium was detected in 9 of the 14 groundwater samples at concentrations ranging from 0.14 mg/L to 0.75 mg/L. The concentration detected in groundwater sample GP-14 exceeds the calculated GSI criterion of 0.650 mg/L.

Copper was detected in 5 of the 14 groundwater samples at concentrations ranging from 0.0043 mg/L to 0.11 mg/L. The concentrations detected in groundwater samples GP-4, GP-11, and GP-14 exceed the calculated GSI criterion of 0.012 mg/L

Lead was detected in 8 of the 14 groundwater samples at concentrations ranging from 0.0031 mg/L to 0.24 mg/L. The concentrations detected in groundwater samples GP-4, GP-11, GP-14, GP-17, and GP-18 exceed the calculated GSI criterion of 0.014 mg/L.

Selenium was detected in 2 of the 14 groundwater samples at concentrations of 0.0071 mg/L and 0.028 mg/L. The concentrations detected in groundwater samples GP-4 and GP-14 exceed the GSI criterion of 0.005 mg/L.

Silver was detected in groundwater sample GP-15 at a concentration of 0.0095 mg/L which exceeds the GSI criterion of 0.0002 mg/L.

Zinc was detected in 3 of the 14 groundwater samples at concentrations ranging from 0.067 mg/L to 0.56 mg/L. The concentration of 0.56 mg/L detected in groundwater sample GP-14 exceeds the GSI criterion of 0.160 mg/L.

VOCs: Methylene chloride was detected in groundwater samples GP-18 and the duplicate sample for GP-19 at concentrations of 5.7 µg/L and 10 µg/L, respectively. The concentrations detected exceed the GRCC and GNRCC for DW of 5.0 µg/L.

Benzene was detected in groundwater sample GP-17 at a concentration of 40 µg/L, which exceeds the GRCC and GNRCC for DW of 5.0 µg/L and the GSI criterion of 12 µg/L.

Trichloroethene was detected in groundwater samples GP-2 and GP-15 at concentrations of 1.6 µg/L and 5.4 µg/L, respectively. The concentration detected in groundwater sample GP-15 of 5.4 µg/L exceeds the GRCC and GNRCC for DW of 5.0 µg/L.

Tetrachloroethene was detected in groundwater sample GP-2 at a concentration of 5.6 µg/L, which exceeds the GRCC and GNRCC for DW of 5.0 µg/L.

2-Methylnaphthalene was detected utilizing USEPA Method 8260D in groundwater samples GP-17 and GP-19 at concentrations of 14 µg/L and 280 µg/L, respectively. The concentration detected in groundwater sample GP-19 exceeds the GSI criterion of 19 µg/L.

Additional VOCs including cis-1,2-dichloroethene, cyclohexane, toluene, ethylbenzene, xylenes, isopropylbenzene, n-propylbenzene, 135-TMB, sec-butylbenzene, n-butylbenzene, and 123-TMB were detected in groundwater samples at concentrations below all GRCC and GNRCC.

PNAs: 2-Methylnaphthalene was detected utilizing USEPA Method 8270E in groundwater samples GP-17 and GP-19 at concentrations of 14 µg/L and 200 µg/L, respectively. The concentration detected in sample GP-19 exceeds the GSI criterion of 19 µg/L.

Fluorene was detected in the duplicate groundwater sample collected from soil boring GP-19 at a concentration of 17 µg/L which exceeds the GSI criterion of 12 µg/L.

Phenanthrene was detected in three of the groundwater samples at concentrations ranging from 2.0 µg/L to 38 µg/L. The concentration detected in sample GP-19 of 38 µg/L exceeds the GSI criterion of 2.0 µg/L.

Fluoranthene was detected in groundwater sample GP-14 at a concentration of 3.4 µg/L which exceeds the GSI criterion of 1.6 µg/L.

Chrysene was detected in groundwater sample GP-14 at a concentration of 2.0 µg/L which exceeds the GNRCC and GNRCC for DW of 1.6 µg/L.

Benzo(b)fluoranthene was detected in groundwater sample GP-14 at a concentration of 2.0 µg/L which exceeds the GRCC and GNRCC for DW of 1.5 µg/L.

Benzo(g,h,i)perylene was detected in groundwater sample GP-14 at a concentration of 1.1 µg/L which exceeds the GRCC and GNRCC for DW of 1.0 µg/L.

Acenaphthene was detected in a groundwater sample at a concentration below established GRCC and GNRCC.

Phenolics: Phenolics were not detected in the two groundwater samples analyzed.

Oil and Grease: Oil and grease were not detected in the two groundwater samples analyzed for these parameters.

PCBs: PCBs were not detected in the two groundwater samples analyzed for these parameters.

Pesticides: Pesticides were not detected in the two groundwater samples analyzed for these parameters.

PFAS: Perfluorobutanic acid (PFBA), perfluoropentanoic acid (PFPeA), perfluorohexanoic acid (PFHxA), perfluorooctanoic acid (PFOA), perfluorobetanesufonic acid (PFBS), and perfluorooctane sulfonic acid (PFOS) were detected in groundwater sample GP-17 and PFBS was detected in groundwater sample GP-12. The concentrations detected are below all established health-based and GSI criteria.

The results of laboratory analysis performed on groundwater samples have been tabulated and are summarized (with corresponding GRCC and GNRCC for DW and GSI) in Tables 2 and 3 in Appendix D. Groundwater sample results are summarized in Figure 4 in Appendix A Laboratory analytical data, complete with COC documentation, are presented as Appendix E.

3.4 Waste Characterization Soil Sample Results

Based on the soils present at the project area, it is anticipated that some of the soil excavated during the project might be repurposed at the same area excavated as backfill. However, it is likely that most excess soil will require appropriate management. Based on the commercial and industrial nature of property use in the vicinity, it was considered possible that adverse impact could be present in the soils at the project area. Therefore, waste characterization composite samples were collected from the areas north and south of Broad Street of the project area to have materials pre-characterized for potential landfill disposal.

The waste characterization samples were composited by parcel location (e.g., DPW and Pri Mar Petroleum, Inc. parcels). Specifically, soil sample Comp-1(S) was a composite of soil samples collected from soil borings GP-1 through GP-12 (DPW parcel) and Comp-2(S) was a composite of soil borings GP-15 through GP-22 (Pri Mar Petroleum, Inc. parcel).

Laboratory analytical results for the composite waste characterization soil samples have been compared to the GRCC for DWP, GSIP, DC, and SDBLs. Additionally, TCLP laboratory results were compared to GRCC for DW and GSI.

VOCs: Some VOCs were detected in each of the composite samples collected and analyzed, but no parameters were present at concentrations that exceed the established GRCC.

PNAs: Low levels of phenanthrene and fluorene were detected, but no PNAs were detected in the composite soil samples at concentrations that exceed the established GRCC.

Reactive Cyanide and Sulfide: Reactive cyanide and sulfide were not detected in either of the composite soil samples collected and analyzed.

Flashpoint: Neither composite soil sample exhibited a flashpoint less than 200^{o} F.

TCLP Metals: Concentrations of metals were not detected in any of the composite soil samples subjected to TCLP analysis for metals.

If determined by the engineer (that excavated soils are suitable for construction purposes), all soil can be repurposed on-site in the same general area from where it was removed.

Based on the results of waste characterization analysis, soils from each parcel are suitable for disposal at a Type II disposal facility designed for such material. Local landfills suitable for disposal consist of Southeast Berrien County Landfill in Buchanan, Michigan; Orchard Hills Sanitary Landfill in Watervliet, Michigan; Autumn Hills Landfill (a Waste Management Company) in Zeeland, Michigan; and Westside Landfill (a Waste Management Company) in Three Rivers, Michigan. Disposal arrangements would need to be made with the landfill with the project owner (City of St. Joseph) being identified as the generator.

Based on the presence of impact exceeding residential criteria in individual grab samples collected from each parcel, any excess soil from these areas that cannot be repurposed shall be disposed of at a Type II landfill.

The results of laboratory analysis performed on the composite waste characterization samples have been tabulated and are summarized in Tables 4 and 5 in Appendix D. Laboratory analytical data for the four waste characterization samples, complete with COC documentation, are presented as Appendix E.

4.0 HAZARDOUS SUBSTANCE INFORMATION

4.1 Known Contamination

The following table summarizes the parameters detected in soil samples collected within the project area during this investigation and their maximum concentrations. The chemical abstract service (CAS) numbers are also presented. It should be noted that the concentrations detected in soil samples shown in bold exceed the GRCC and/or GNRCC for DWP, GSIP, or DC.

Table 6. Parameters Detected in Soil

Parameter	CAS Number	Maximum Soil Concentration (sample depth)	Exceeds Residential Criteria	Exceeds Nonresidential Criteria
Arsenic	**7440382**	**170 mg/kg (2')**	**DWP, GSIP, DC**	**DWP, GSIP, DC**
Barium	7440393	160 mg/Kg (5')	None	None
Cadmium	7440439	0.93 mg/kg (2')	None	None
Chromium	**7440473**	**45 mg/kg (3')**	**DWP**	**DWP**
Copper	7440508	66 mg/kg (3')	None	None
Lead	7439921	120 mg/kg (4')	None	None
Mercury	**7439976**	**0.19 mg/kg (3')**	**GSIP**	**GSIP**
Selenium	**7782492**	**5.0 mg/kg (2')**	**DWP, GSIP**	**DWP, GSIP**
Zinc	**7440666**	**230 mg/kg (2' & 3')**	**GSIP**	**GSIP**
Cyclohexane	110827	12,000 µg/kg (4')	None	None
Toluene	108883	140 µg/kg (4')	None	None
Tetrachloroethene	**127184**	**130 µg/kg (4')**	**DWP**	**DWP**
Chlorobenzene	108907	51 µg/kg (4')	None	None
Ethylbenzene	100414	88 µg/kg (4')	None	None
Xylenes	1130207	550 µg/kg (4')	None	None
Isopropylbenzene	98828	810 µg/kg (4')	None	None
n-Propylbenzene	103651	1,400 µg/kg (5')	None	None
1,3,5-TMB	108678	280 µg/kg (4')	None	None
t-Butyl Benzene	98066	150 µg/kg (5')	None	None

Parameter	CAS Number	Maximum Soil Concentration (sample depth)	Exceeds Residential Criteria	Exceeds Nonresidential Criteria
1,2,4-TMB	95636	130 µg/kg (2')	None	None
sec-Butylbenzene	135988	1,500 µg/kg (5')	None	None
n-Butylbenzene	**104518**	**3,400 µg/kg (5')**	**DWP**	None
1,2,3-TMB	526738	300 µg/kg (5')	None	None
2-Methylnaphthalene	**91576**	**10,000 µg/kg (5')**	**GSIP**	**GSIP**
Naphthalene	**91203**	**940 µg/kg (5')**	**GSIP**	**GSIP**
Acenaphthene	89329	7,700 µg/kg (5')	None	None
Fluorene	**86737**	**13,000 µg/kg (5')**	**GSIP**	**GSIP**
Phenanthrene	**85018**	**34,000 µg/kg (5')**	**GSIP**	**GSIP**
Anthracene	120127	3,100 µg/kg (5')	None	None
Fluoranthene	**206440**	**14,000 µg/kg (3')**	**GSIP**	**GSIP**
Pyrene	129000	11,000 µg/kg (3')	None	None
Benzo(a)anthracene	56553	5,500 µg/kg (3')	None	None
Chrysene	218019	5,500 µg/kg (3')	None	None
Benzo(b)fluoranthene	205992	7,300 µg/kg (3')	None	None
Benzo(k)fluoranthene	207089	2,200 µg/kg (3')	None	None
Benzo(a)pyrene	**50328**	**5,800 µg/kg (3')**	**DC**	None
Indeno(1,2,3-cd)pyrene	193395	3,200 µg/kg (3')	None	None
Dibenzo(a,h)anthracene	53703	770 µg/kg (3')	None	None
Benzo(g.h.i)perylene	191242	2,600 µg/kg (3')	None	None

mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram

The following table summarizes the parameters detected in groundwater samples collected within the project area during this investigation and their maximum concentrations. The CAS numbers are also presented. It should be noted that the concentrations detected in groundwater samples shown in bold exceed the GRCC and/or GNRCC for DW and/or GSI.

Table 7. Parameters Detected in Groundwater

Parameter	CAS Number	Maximum Groundwater Concentration	Exceeds Residential Criteria	Exceeds Nonresidential Criteria
Mercury	**7439976**	**0.00036 mg/L**	**GSI**	**GSI**
Arsenic	**7440382**	**0.071 mg/L**	**DW, GSI**	**DW, GSI**
Barium	**7440393**	**0.75 mg/L**	**GSI**	**GSI**
Chromium	7440473	0.086 mg/L	None	None
Copper	**7440508**	**0.11 mg/L**	**GSI**	**GSI**
Lead	**7439921**	**0.24 mg/L**	**DW*, GSI**	**DW*, GSI**
Selenium	**7782492**	**0.033 mg/L**	**GSI**	**GSI**
Zinc	**7440666**	**0.56 mg/L**	**GSI**	**GSI**
Methylene Chloride	**75092**	**10 µg/L**	**DW**	**DW**
cis-1,2-Dichloroethene	156592	8.2 µg/L	None	None
Benzene	**71432**	**40 µg/L**	**DW, GSI**	**DW, GSI**
Cyclohexane	110827	170 µg/L	None	None
Trichloroethene	**79016**	**5.4 µg/L**	**DW**	**DW**
Toluene	108883	6.7 µg/L	None	None
Tetrachloroethene	**127184**	**5.6 µg/L**	**DW**	**DW**
Ethylbenzene	100414	3.0 µg/L	None	None
Xylenes	1330207	7.6 µg/L	None	None
Isopropylbenzene	98828	15 µg/L	None	None
n-Propylbenzene	103651	27 µg/L	None	None
1,3,5-TMB	108678	7.3 µg/L	None	None
sec-Butylbenzene	135988	6.4 µg/L	None	None
n-Butylbenzene	104518	10 µg/L	None	None
1,2,3-TMB	526738	5.2 µg/L	None	None
2-Methylnaphthalene	**91576**	**300 µg/L**	**GSI**	**GSI**
Acenaphthene	83329	13 µg/L	None	None
Fluorene	**86737**	**17 µg/L**	**GSI**	**GSI**
Phenanthrene	**85018**	**38 µg/L**	**GSI**	**GSI**
Fluoranthene	**206440**	**3.4 µg/L**	**GSI**	**GSI**

Parameter	CAS Number	Maximum Groundwater Concentration	Exceeds Residential Criteria	Exceeds Nonresidential Criteria
Benzo(a)anthracene	56553	2.1 µg/L	None	None
Chrysene	**218019**	**2.0 µg/L**	**DW**	**DW**
Benzo(b)fluoranthene	**205992**	**2.0 µg/L**	**DW**	**DW**
Benzo(a)pyrene	50328	1.5 µg/L	None	None
Benzo(g,h,i)perylene	191242	1.1 µg/L	None	None
PFBA	375224	4.3 ng/L	None	None
PFPeA	2706903	1.6 ng/L	None	None
PFHxA	307244	1.2 ng/L	None	None
PFOA	335671	0.77 ng/L	None	None
PFBS	375735	3.0 ng/L	None	None
PFOS	1763231	0.76 ng/L	None	None

mg/L = milligrams per liter
µg/L = micrograms per liter
ng/L = nanograms per liter
* This value is below the action level of 15 ug/L

4.2 Evaluation of Exposure Pathways for Construction Activities

Potentially complete pathways related to adversely impacted soil and groundwater within the project area have been evaluated as they pertain to the proposed construction project and potential exposure pathways relating to workers performing soil excavation and (possible) reuse and dewatering of the project area. The evaluation of potential exposure pathways is based on Generic Residential Cleanup Criteria established in Table 2. Part 201 - Soil: Generic Residential Cleanup Criteria; Generic Nonresidential Cleanup Criteria established in Table 3. Part 201 - Soil: Generic Nonresidential Cleanup Criteria; and, Table 1. Part 201 - Groundwater: Generic Residential and Nonresidential Cleanup Criteria.

Soil. Mercury, arsenic, chromium, selenium, zinc, tetrachloroethene, n-butylbenzene, 2-methylnaphthalene, naphthalene, fluorene, phenanthrene, fluoranthene, and benzo(a)pyrene are present in soil at concentrations that exceed the GRCC for DWP, GSIP, and/or DC. Mercury, arsenic, chromium, selenium, zinc, tetrachloroethylene, 2-

methylnaphthalene, naphthalene, fluorene, phenanthrene, fluoranthene, and benzo(a)pyrene are also present in the soil at concentrations that exceed the GNRCC for DWP. Arsenic was detected in one soil sample at a concentration that exceeds the GNRCC for DC. It is noted that this sample location is not within the proposed project area. Contaminants were not detected at concentrations that exceed the GRCC for PSIC or the GNRCC for VSIC and PSIC.

Groundwater. Mercury, arsenic, barium, copper, lead, selenium, zinc, methylene, chloride, benzene, trichloroethene, tetrachloroethene, 2-methlnaphthalene, fluorene, phenanthrene, fluoranthene, chrysene, and benzo(b)fluoranthene are present in the groundwater at concentrations that exceed the GRCC and GNRCC for DW and/or GSI.

Exposure Pathway Evaluation. A completed exposure pathway requires the following four elements:

1. *A source and mechanism for the release of chemicals into the environment.*
2. *A transport medium (e.g., soil, groundwater, air) for the chemicals to migrate from the source to a receptor.*
3. *A point of potential contact (exposure) for the receptor with the medium.*
4. *An uptake route or means for taking the chemical into the body (e.g., ingestion, inhalation, absorption).*

If all four elements are present, an exposure pathway is completed. However, if one (or more) of the four elements is not present, the exposure pathway is not completed.

Potentially complete pathways for soil and groundwater were evaluated for the project area based on the analytical data collected during the site investigation activities. These pathways are detailed below.

- ***Evaluation of Impacted Surface Soils (<2.0 feet bgl).*** *The potential transport mechanisms for impacted surface and shallow subsurface soils include direct contact, wind atmospheric dispersion, volatilization and atmospheric dispersion, volatilization and enclosed space accumulation, and leaching and groundwater transport. The potential exposure pathways*

for visitors, employees, and utility workers include dermal contact, absorption, ingestion, and inhalation.

Arsenic and selenium were detected in shallow soils at concentrations that exceed the GNRCC for DWP. This pathway is relevant but not potentially complete because the potable water supply at the project area is provided by the City of St. Joseph municipal supply which draws water directly from Lake Michigan. Direct ingestion of soils should be avoided.

Arsenic is present in one shallow soil sample at concentrations that exceed the GNRCC for DC. The area is limited to the northern portion of the Pri Mar Petroleum, Inc. parcel. This pathway is considered relevant but not potentially complete because this location is not within the project area.

No contaminant concentrations exceed the GNRCC for VSIC and PSIC.

Based on the presence of contaminants exceeding residential health-based criteria and GSIP criteria, proper management of soils should be conducted during construction activities. Specifically, excess soil which cannot be repurposed in the same area can be relocated from the project area to a Type II landfill designed for such material. Soils from these areas have been subjected to waste characterization (see Appendix D).

☐ ***Evaluation of Impacted Subsurface Soils (>2.0 feet bgl).*** *The potential transport mechanisms for impacted subsurface soils include direct contact, volatilization and atmospheric dispersion, volatilization and enclosed space accumulation, and leaching and groundwater transport. The potential exposure pathways for utility workers include ingestion, dermal contact, inhalation, and/or absorption.*

Arsenic, chromium, selenium, and tetrachloroethene were detected in subsurface soil samples at concentrations that exceed GNRCC for DWP. This pathway is considered relevant but not potentially complete because the potable water supply at the project area is provided by the City of St.

Joseph municipal supply which draws water directly from Lake Michigan. Direct ingestion of soils should be avoided.

No contaminant concentrations were detected in subsurface soil samples that exceed the GNRCC for DC, VSIC, and PSIC.

Based on the presence of contaminants exceeding residential health-based criteria and GSIP criteria, proper management of soils should be conducted during construction activities. Specifically, excess soil which cannot be repurposed in the same area can be relocated from the project area to a Type II landfill designed for such material. Soils from these areas have been subjected to waste characterization (see Appendix D).

It should be noted that suitable soil excavated can be repurposed on-site in the same general area from where it was removed. Excess soil which will be stockpiled for an extended period shall be placed on an impervious surface or plastic sheeting and appropriately covered with plastic sheeting until repurposed or off-site disposal is conducted.

- ***Evaluation of Dissolved Groundwater Plume.*** *The potential transport mechanisms for impacted groundwater include direct contact, volatilization and atmospheric dispersion, volatilization and enclosed space accumulation, and groundwater transport. The potential exposure pathways for utility workers include ingestion, dermal contact, and absorption of contamination from groundwater.*

  Arsenic, lead, tetrachloroethene, methylene chloride, benzene, trichloroethene, chrysene, benzo(be)fluoranthene, and benzo(g,h,i)perylene were identified in the groundwater at concentrations greater than GRCC/GNRCC for DW. Since the project area consists of commercial parcels and a roadway, there are no receptors for the drinking water pathway. Ingestion of groundwater should be avoided. It is noted that the potable water supply in the general area is provided by the City of St. Joseph municipal supply which draws water directly from Lake Michigan.

Multiple contaminants were detected in groundwater samples at concentrations greater than applicable cleanup criteria. Discharge of dewatering fluids cannot be made to surface water (under an NPDES Permit) without pretreatment.

4.3 Potential Fire or Explosion Hazards

Based on available information and analytical data, there are no fire or explosion hazards within the project area associated with regulated parameters in soil or groundwater. It is noted that soils exhibiting aesthetic impact (staining and strong odors of petroleum) will likely be encountered on the Pri Mar Petroleum, Inc. parcel, however, these soils do not pose health, fire, or explosion risk to subsurface utility workers.

5.0 PLAN FOR COMPLIANCE

The purpose of this section is to discuss and demonstrate how the City of St. Joseph and contractors and employes will comply with due care obligations outlined in Section 20107a of Part 201 of Michigan's Natural Resources and Environmental Protection Act (NREPA), P.A. 451 of 1994, as amended.

5.1 Health and Safety Plan

In accordance with 29 CFR 1910.120, a site-specific health and safety plan shall be developed by the project management firm for all contractors involved with activities in the project area. This plan is intended to provide safe working conditions for personnel at the site. The procedures and personal protective equipment requirements shall be established based on an evaluation of known site conditions described in this report as well as perceived or potential hazards.

5.2 Exacerbation

Following construction, the project area will be repaired to existing conditions and will not include the storage, handling, or management of hazardous substances. Therefore, additional releases will not occur and potentially commingle with the existing contamination. It should be noted that contaminated soil and groundwater has been identified within the project area and will be encountered during the proposed utility construction/dewatering activities. Proper soil and groundwater management activities shall be followed to prevent the exacerbation of the identified contamination as indicated below.

Impacted Soil: Best construction practices (e.g., dust control, sediment control, securing the construction area) shall be utilized to prevent exacerbation and exposure to impacted soil.

- All soil excavated from the project area should be repurposed as backfill within the project area near the original excavation area whenever possible and as approved by the project engineer.

- Soils that cannot be repurposed on-site as a part of the project should be disposed of at a licensed landfill facility.

- Soils may be relocated off-site other than to a landfill if the stockpiled excess soil waste is sufficiently tested to determine if it is "clean" in accordance with EGLE's Strategies and Statistics Training Materials for Part 201 Cleanup Criteria dated August 2002. Analyses shall include VOCs, PNAs, and Michigan List metals.

- Soils stockpiled for an extended period (i.e., other than day-to-day storage and relocation/repurposing) should be managed (e.g., placed on an impervious surface or plastic sheeting, tarped, and surrounded with silt barriers) to prevent infiltration from precipitation and runoff to the storm sewer system. If additional suspected contaminated soils are encountered (e.g., visual and/or olfactory observations) during construction activities, it is recommended that soil quality be further evaluated in order to determine appropriate response action for potentially completed exposure pathways, PPE requirements, and/or soil relocation requirements.

Impacted Groundwater: Groundwater is shallow (3.5-17 feet bgl) and dewatering activities will be necessary. The presence of various contaminants has been identified in the shallow groundwater at concentrations exceeding corresponding cleanup criteria. Therefore, discharge to surface water (under an NPDES Permit) would not be allowed without pretreatment of the fluids to achieve required levels. Approval from the Benton Harbor-St. Joseph Wastewater Treatment Plant (WWTP) has been obtained for discharge of these dewatering fluids to the sanitary sewer system without pretreatment (other than filtering sediments).

5.3 Due Care

Based on the actual and intended use of the project area and the available data, there do not appear to be completed pathways associated with construction/utility worker to impacted soil or groundwater. The contractor will not be required to perform any response

activities to comply with Section 20107a, although proper management of impacted soils and groundwater will be necessary as described herein.

5.4 Reasonable Precautions

If the hazardous substances present at the project area could present an unacceptable exposure to utility workers or other persons conducting activities at the project area, the owner may satisfy his or her obligation to mitigate unacceptable exposure to the utility workers or to other persons by providing written notice of the general nature and extent of contamination and potential unacceptable exposures.

Based on the available data indicating that parameters are not present in the soil or groundwater in excess of applicable nonresidential direct contact criteria, response activities or notifications are not required. An environmental information sheet has been prepared and will be posted at the construction site informing site workers of environmental conditions and soil/groundwater handling requirements. This information is presented in Appendix F. Information regarding the environmental condition of the project area will be publicly disclosed at pre-bid meetings and will be presented to site supervisors and project managers at project kickoff.

6.0 CONCLUSIONS AND LIMITATIONS

This report, including the appendices attached hereto, describes the results of the utility corridor investigation conducted to evaluate the potential presence of adverse soil and groundwater impact within the project area located at three parcels of property located at 1160, 1183, and 1223 Broad Street and the associated right-of-way of Broad Street in St. Joseph, Berrien County, Michigan.

The following conclusions are presented:

- The soils encountered across the project area generally consist of urban fill (e.g., sand with varying amounts of cinders, brick, miscellaneous debris, and concrete) to depths ranging from 1 to 8 feet bgl. The urban fill overlies former floodplain soils that consist of interbedded layers of sands, silts, and clays with varying amounts of organics (e.g., wood and shells) to depths of more than 15 feet bgl.

- Arsenic, chromium, selenium, tetrachloroethene, and n-butylbenzene have been detected in soil samples at concentrations that exceed the drinking water protection criterion.

- Mercury, arsenic, selenium, zinc, tetrachloroethene, naphthalene, 2-methylnaphthalene, fluorene, phenanthrene, fluoranthene, and benzo(a)pyrene have been identified in soil samples at concentrations that exceed the groundwater surface water interface protection criterion.

- Arsenic and benzo(a)pyrene were detected in soil samples at concentrations that exceed the residential direct contact criteria.

- Arsenic was detected in one soil sample at a concentration that exceeds the nonresidential direct contact criterion. The location of the soil sample is outside of the proposed project area and is not considered relevant.

- No parameters have been detected in soil samples within the project area exceeding nonresidential criteria for direct contact. The exposure pathway evaluation for construction and utility workers regarding dermal contact, absorption, and inhalation (particulates and vapors) are not considered potentially complete.

- Based on the presence of regulated parameters exceeding residential criteria in the subsurface and the potential that other areas of impact might be encountered during construction activities, one or more site workers shall be trained in accordance with the OSHA HAZWOPER standard for the construction industry (29 CFR 1926.65) at the supervisor level. This person shall make decisions about the need for additional characterization and/or necessary PPE adjustments.

- Best construction practices will be required to prevent the exacerbation of soil contamination identified within the project area and to minimize the generation of dust.

- Suitable soil (at the discretion of the engineer) excavated can be repurposed on-site in the same general area from where it was removed.

- Based on the presence of impact exceeding residential criteria, excess soil that cannot be repurposed at the area excavated shall be disposed of at a Type II landfill designed for such material unless specific characterization is performed to verify the material is not impacted. Soils from the project area have been subjected to waste characterization analysis and the results are presented in Appendix E.

- Excess soil that cannot be repurposed may be relocated off-site other than to a landfill only if the excess soil is sufficiently tested to determine that it is “clean” in accordance with EGLE’s Sampling

Strategies and Statistics Training Materials for Part 201 Cleanup Criteria dated August 2002. Analyses shall include VOCs, PNAs, and Michigan List metals.

- Excess soil which will be stockpiled for an extended period shall be placed on an impervious surface or plastic sheeting and appropriately covered with plastic sheeting.

- Saturated conditions (groundwater) vary based on ground surface elevation but are generally encountered 3.5 feet to 17 feet bgl.

- Mercury, arsenic, lead, methylene chloride, benzene, trichloroethene, tetrachloroethene, chrysene, benzo(b)fluoranthene, and benzo(g,h,i)perylene have been detected in groundwater samples at concentrations that exceed the residential and/or nonresidential drinking water criteria.

- Mercury, arsenic, barium, copper, lead, selenium, silver, zinc, benzene, 2-methylnaphthalene, fluorene, phenanthrene, and fluoranthene have been detected in groundwater samples at concentrations that exceed the groundwater surface water interface criteria.

- Based on the shallow depth to groundwater, dewatering activities will likely be required for utility installation. Best construction practices will be required to prevent the exacerbation of groundwater contamination identified within the project area.

- Based on the presence of contaminants at concentrations in groundwater that exceed applicable criteria, dewatering fluids are not permitted to be discharged to the surface or subsurface without treatment. The best option for proper management of dewatering fluids would be treatment (as necessary) and discharge to the Benton Harbor-St. Joseph WWTP sanitary sewer.

The conclusions presented herein are based solely on the services described, and not on scientific tasks or procedures beyond the scope of agreed upon services. This report makes no warranty regarding the presence or absence of affected materials across the project area other than the soil and groundwater samples specifically described and those parameters specifically tested for by the laboratory.

It is noted that the extent of soil and groundwater impact has not been delineated. It is possible that subsurface work could uncover additional/unknown contaminated soil or groundwater areas. One or more site workers shall be trained in accordance with the OSHA HAZWOPER standard for the construction industry (29 CFR 1926.65) at the supervisor level. This person shall make decisions about the need for additional characterization and/or necessary PPE adjustments.

It is noted again that soils exhibiting aesthetic impact (staining and strong odors of petroleum) will likely be encountered on the Pri Mar Petroleum, Inc. parcel, however, these soils do not pose health, fire, or explosion risk to subsurface utility workers.

7.0 REPORT PREPARATION

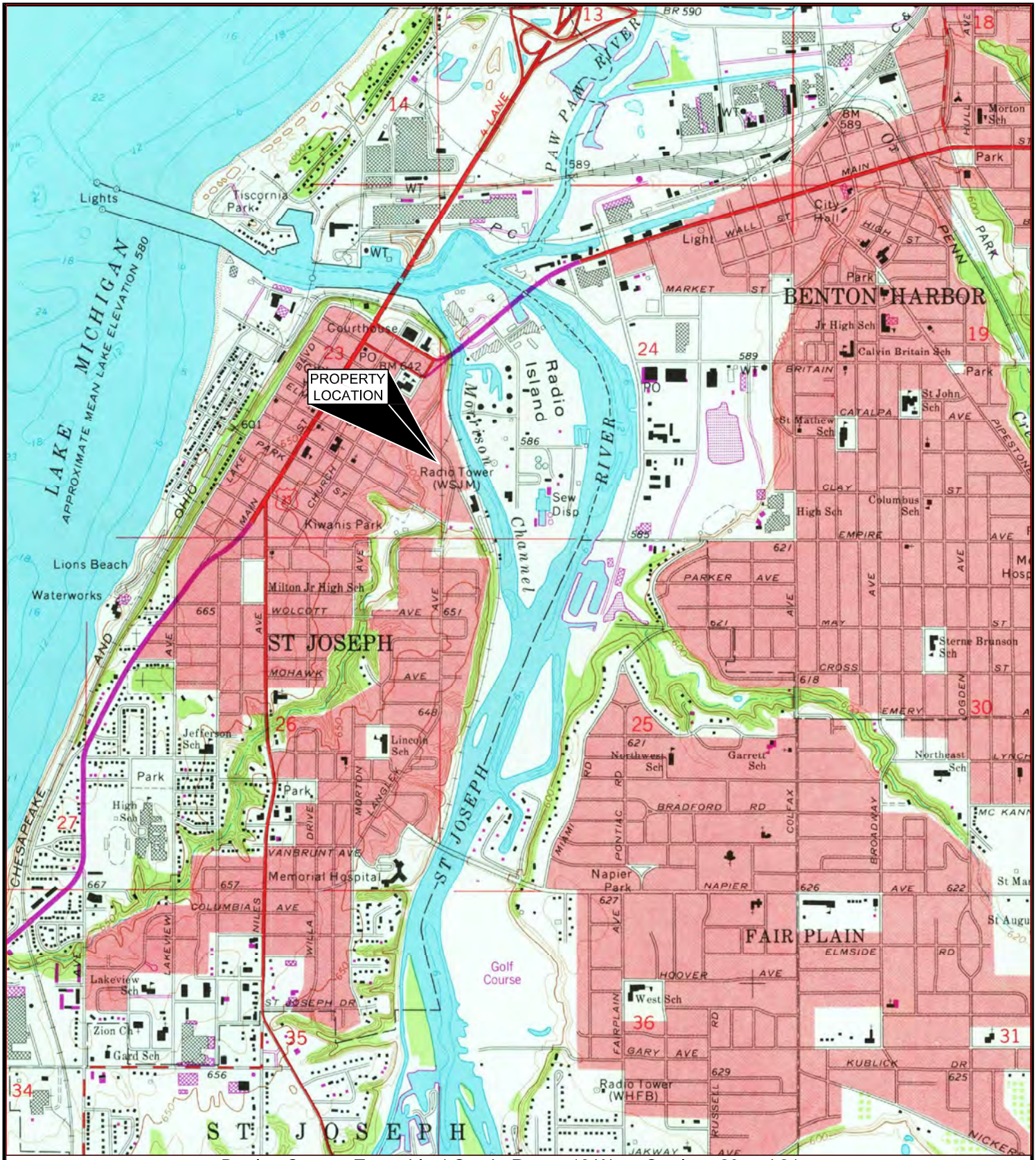
Subsurface soil and groundwater sampling and analysis activities have been conducted at the project area consisting of three parcels of property located at 1160, 1183, and 1223 Broad Street and the associated right-of-way of Broad Street in St. Joseph, Berrien County, Michigan. This Technical Summary Report and Due Care Plan was prepared for the benefit of the Wade Trim, the City of St. Joseph, and its contractors involved with the CSO Compliance project and summarizes due care obligations associated with observed environmental conditions. The report was written by Mr. Mark A. Turner, Characterization Team Lead and Mark C. Seaman, CPG.

Mark A. Turner
Characterization Team Lead

Mark C. Seaman, CPG
President

Appendix A

Figures



Berrien County, Township 4 South, Range 18 West, Sections 23 and 24

N
W E
S
0 1000 2000
SCALE: 1" = 2000'

pointblue

FIGURE 1
SITE LOCATION MAP

CITY OF ST. JOSEPH
CSO COMPLIANCE PROJECT
ST. JOSEPH, MICHIGAN

REVISION		DATE: 1/22/2024	APPROVED: MCS
DATE:	BY:	DRAWN: MAT	JOB No: D5090

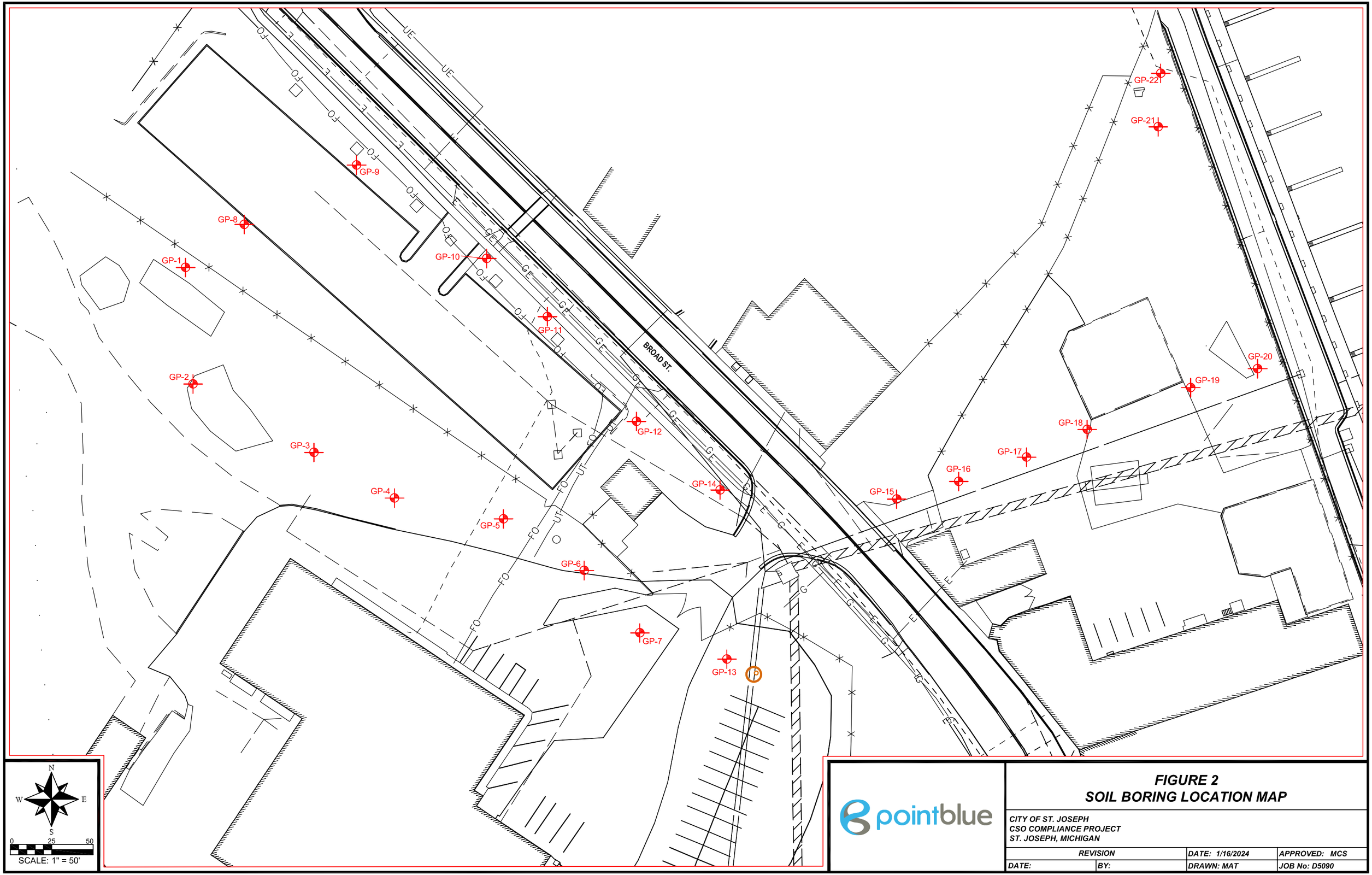


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FIGURE 2
SOIL BORING LOCATION MAP

CITY OF ST. JOSEPH
CSO COMPLIANCE PROJECT
ST. JOSEPH, MICHIGAN

REVISION		DATE: 1/16/2024	APPROVED: MCS
DATE:	BY:	DRAWN: MAT	JOB No: D5090

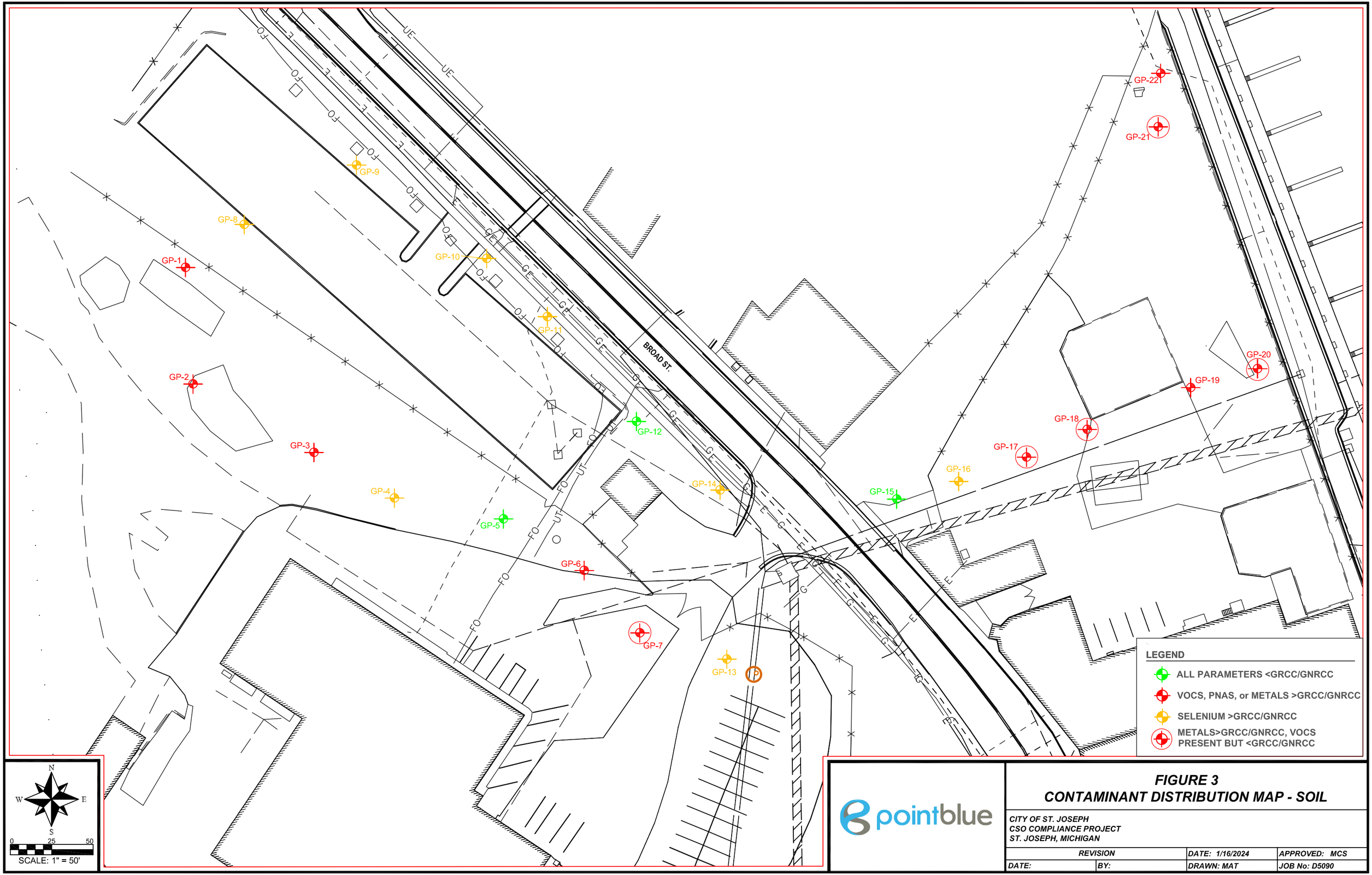

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FIGURE 3
CONTAMINANT DISTRIBUTION MAP - SOIL

CITY OF ST. JOSEPH
CSO COMPLIANCE PROJECT
ST. JOSEPH, MICHIGAN

REVISION		DATE: 1/16/2024	APPROVED: MCS
DATE:	BY:	DRAWN: MAT	JOB No: D5090

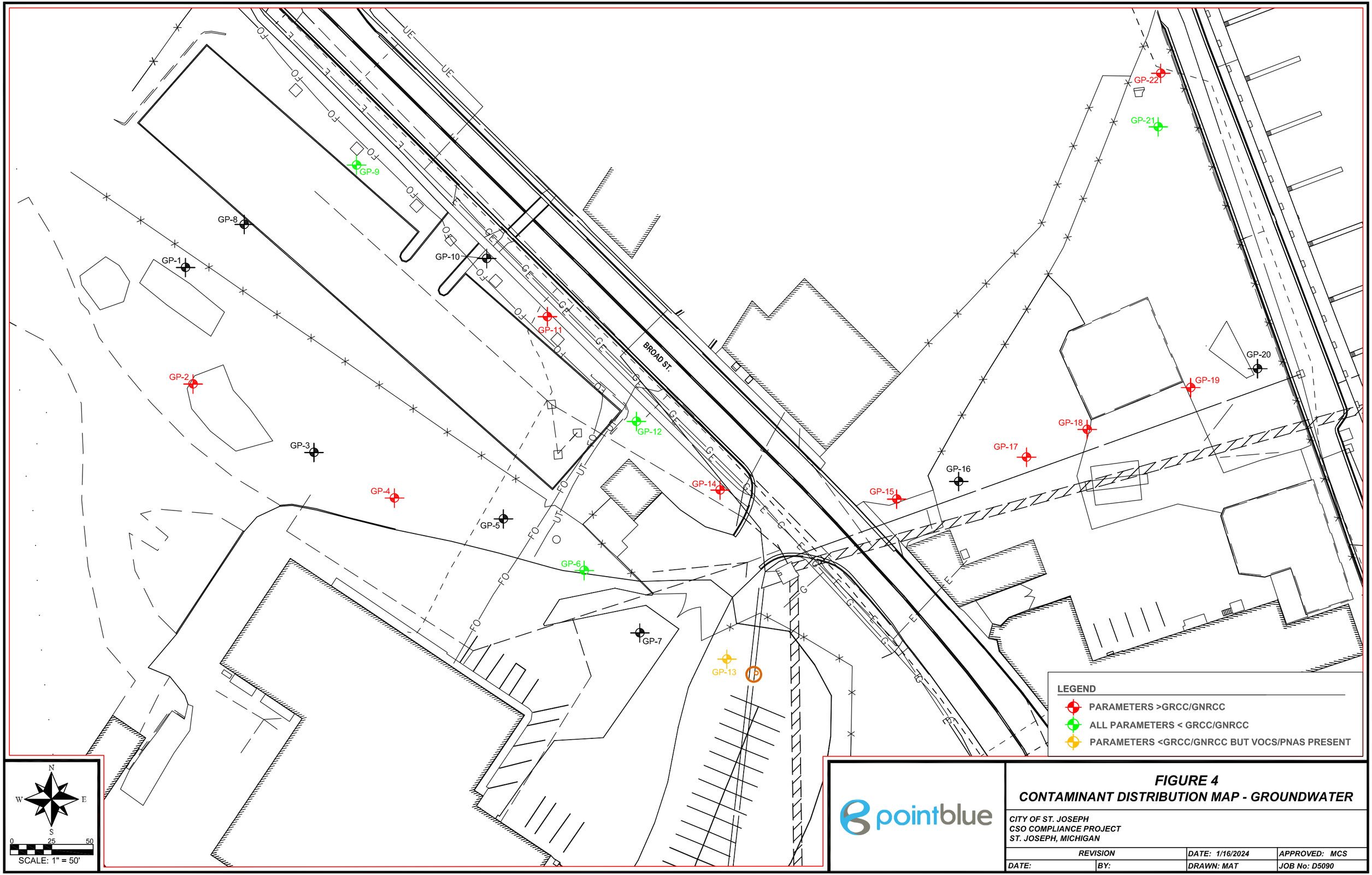

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FIGURE 4
CONTAMINANT DISTRIBUTION MAP - GROUNDWATER

CITY OF ST. JOSEPH
CSO COMPLIANCE PROJECT
ST. JOSEPH, MICHIGAN

REVISION		DATE: 1/16/2024	APPROVED: MCS
DATE:	BY:	DRAWN: MAT	JOB No: D5090

Appendix B

Soil Boring Logs

Log of Boring GP-1

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1160 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/26/2023

Top of Casing: NA
Depth to Water: NA
Ground Elevation: NA

Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	SILTY CLAY: Dark brown.			
1	SILTY CLAY: Brown.			
2	SAND: Brown, fine-grained,			2' = ND
3				
4	SAND: Very dark brown, fine-grained, with cinders, brick, and concrete.			4' = ND
5	CONCRETE.			5.5' = ND
6	End of borehole 5.5 feet bgl.			
7	*Refusal encountered at four locations due to the presence of fill including cinders, brick, and concrete from 4.0 to 5.5 feet bgl.			
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram

DRILLER INFORMATION
Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES
* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING
Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

WELL SCREEN/ CASING
Material: NA
Diameter: NA
Joint: NA
Slot: NA
Screen Length: NA
Interval: NA
Casing Length: NA
Sand Pack: NA
Plug: NA
Seal: NA

SURFACE COMPLETION
Material: NA
Cover/Lock: NA
Cap: NA
Stickup: NA

DEVELOPMENT
Date Developed: NA
Depth to Water: NA
Gallons Purged: NA

Log of Boring GP-2

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1160 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/26/2023

Top of Casing: NA
Depth to Water: 5.5'
Ground Elevation: NA

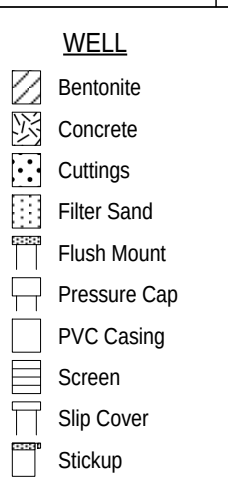
Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	SAND: Brown, fine- to coarse-grained.			
1	SAND: Brown, fine-grained, with brick.			
2				2' = ND
3	SAND: Brown, fine-grained, with concrete.			
4				4' = ND
5	SAND: Dark brown, fine- to coarse-grained, with gravel.			
6	SAND: Brown, fine-grained. Saturated at 5.5' bgl.			6' = ND*
7				
8				8' = ND*
9				
10	SAND: Gray, fine-grained. / SILTY CLAY: Gray.			10' = ND*
11	SAND: Gray, fine-grained, with shells and some clay.			
12				12' = ND*
13				
14				
15	End of borehole 15.0 feet bgl.			15' = ND*
16				
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram



Depth in Feet: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21

DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

A groundwater sample was collected utilizing a temporary well technique. A 1" PVC screen was inserted into the open borehole and set from 5 feet bgl to 10 feet bgl to collect sample GP-2(W). The well screen was removed following sample collection.

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	5.5'
Gallons Purged:	NA

Log of Boring GP-3

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1160 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/26/2023

Top of Casing: NA
Depth to Water: 4.5'
Ground Elevation: NA

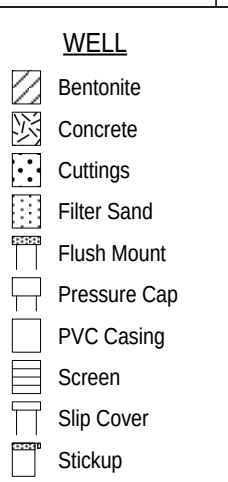
Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	CLAYEY SAND: Very dark brown, fine-grained, with silt.			
1	SILTY CLAY: Brown, trace of fine-grained sand.			
2	CLAYEY SAND: Very dark brown, fine-grained, with cinders.			2' = ND
3	BRICK. SAND: Dark brown, fine-grained.			
4	Saturated at 4.5' bgl.			4' = ND
5				
6				6' = ND*
7				
8				8' = ND*
9	SILTY SAND: Brown, fine-grained, soft.			
10				10' = ND*
11				
12	CLAYEY SILT: Gray, with shells, soft.			12' = ND*
13				
14				
15	End of borehole 15.0 feet bgl.			15' = ND*
16				
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram



Depth in Feet: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	4.5'
Gallons Purged:	NA

Log of Boring GP-4

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1160 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/26/2023

Top of Casing: NA
Depth to Water: 14.0'
Ground Elevation: NA

Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	CLAYEY SAND: Dark brown, fine-grained.			
1	SANDY CLAY: Dark brown, fine-grained.			
2	CONCRETE.			
	SILTY CLAY: Brown, trace of fine-grained sand.			2' = ND
3				
4				4' = ND
5				
6				6' = ND
7				
8	SILTY CLAY: Gray.			8' = ND
9				
10	CLAYEY SILT: Very dark gray, soft.			10' = ND
11				
12				12' = ND
13				
14	SAND: Gray, fine- to medium-grained. Saturated at 14.0' bgl.			
15	End of borehole 15.0 feet bgl.			15' = ND*
16	*Refusal encountered at five locations due to the presence of fill including cinders, brick, and concrete from 2.5 to 6.5 feet bgl.			
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram

DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

A groundwater sample was collected utilizing a temporary well technique. A 1" PVC screen was inserted into the open borehole and set from 10 feet bgl to 15 feet bgl to collect sample GP-4(W). The well screen was removed following sample collection.

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	14.0'
Gallons Purged:	NA

Log of Boring GP-5

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1160 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/26/2023

Top of Casing: NA
Depth to Water: 4.5'
Ground Elevation: NA

Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	CLAYEY SAND: Dark brown, fine-grained.			
1	SILTY CLAY: Brown.			
2	SAND: Light brown, fine-grained.			2' = ND
3				
4				4' = ND
	Saturated at 4.5' bgl.			
5				
6				6' = ND*
7	SAND: Very dark brown, fine- to coarse-grained			
8				8' = ND*
9	CLAYEY SILT: Very dark brown, with wood and organics.			
10				10' = ND*
11				
12				12' = ND*
13				
14				
15	End of borehole 15.0 feet bgl.			15' = ND*
16				
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram

DRILLER INFORMATION
Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

DRILL DETAIL/ SAMPLING
Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

NOTES
* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

WELL SCREEN/ CASING
Material: NA
Diameter: NA
Joint: NA
Slot: NA
Screen Length: NA
Interval: NA
Casing Length: NA
Sand Pack: NA
Plug: NA
Seal: NA

SURFACE COMPLETION
Material: NA
Cover/Lock: NA
Cap: NA
Stickup: NA

DEVELOPMENT
Date Developed: NA
Depth to Water: 4.5'
Gallons Purged: NA

Log of Boring GP-6

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1160 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/26/2023

Top of Casing: NA
Depth to Water: 4.5'
Ground Elevation: NA

Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	ASPHALT: Crushed, with gravel.			
1	CLAYEY SAND: Very dark brown, fine- to medium-grained, with cinders.			
2				2' = ND
3				
4				4' = ND
5	SILTY SAND: Gray, fine-grained. Saturated at 4.5' bgl.			
6				6' = ND*
7				
8				8' = ND*
9	CLAYEY SILT: Gray, with wood and shells, soft.			
10				10' = ND*
11				
12				12' = ND*
13				
14				
15	End of borehole 15.0 feet bgl.			15' = ND*
16				
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram

DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

A groundwater sample was collected utilizing a temporary well technique. A 1" PVC screen was inserted into the open borehole and set from 5 feet bgl to 10 feet bgl to collect sample GP-6(W). The well screen was removed following sample collection.

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	4.5'
Gallons Purged:	NA

Log of Boring GP-7

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1160 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/26/2023

Top of Casing: NA
Depth to Water: 3.9'
Ground Elevation: NA

Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	ASPHALT.			
1	CLAYEY SAND: Brown, fine-grained, with gravel.			
2	SAND: Dark brown, fine-grained, with cinders.			2' = ND
3				
4	SAND: Gray, fine-grained. Saturated at 3.9' bgl.			4' = ND*
5				
6				6' = ND*
7				
8	CLAYEY SILT: Gray, with wood and shells.			8' = ND*
9				
10				10' = ND*
11				
12				12' = ND*
13				
14				
15	End of borehole 15.0 feet bgl.			15' = ND*
16				
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram

DRILLER INFORMATION
Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

DRILL DETAIL/ SAMPLING
Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

NOTES
* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

WELL SCREEN/ CASING
Material: NA
Diameter: NA
Joint: NA
Slot: NA
Screen Length: NA
Interval: NA
Casing Length: NA
Sand Pack: NA
Plug: NA
Seal: NA

SURFACE COMPLETION
Material: NA
Cover/Lock: NA
Cap: NA
Stickup: NA

DEVELOPMENT
Date Developed: NA
Depth to Water: 3.9'
Gallons Purged: NA

Log of Boring GP-8

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1160 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/26/2023

Top of Casing: NA
Depth to Water: NA
Ground Elevation: NA

Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	CLAYEY SAND: Brown, fine-grained, with trace of small gravel.			
2				2' = ND
4				4' = ND
5	SILTY CLAY: Brown, trace of fine-grained sand.			
6				6' = ND
8	CONCRETE.			8' = ND
8	End of borehole 8.5 feet bgl.			
10	*Refusal encountered due to the presence of fill including brick and concrete at 8.5 feet bgl.			

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram

DRILLER INFORMATION
Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

DRILL DETAIL/ SAMPLING
Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

NOTES
* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

WELL SCREEN/ CASING
Material: NA
Diameter: NA
Joint: NA
Slot: NA
Screen Length: NA
Interval: NA
Casing Length: NA
Sand Pack: NA
Plug: NA
Seal: NA

SURFACE COMPLETION
Material: NA
Cover/Lock: NA
Cap: NA
Stickup: NA

DEVELOPMENT
Date Developed: NA
Depth to Water: NA
Gallons Purged: NA

Log of Boring GP-9

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1160 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/26/2023

Top of Casing: NA
Depth to Water: 17.5'
Ground Elevation: NA

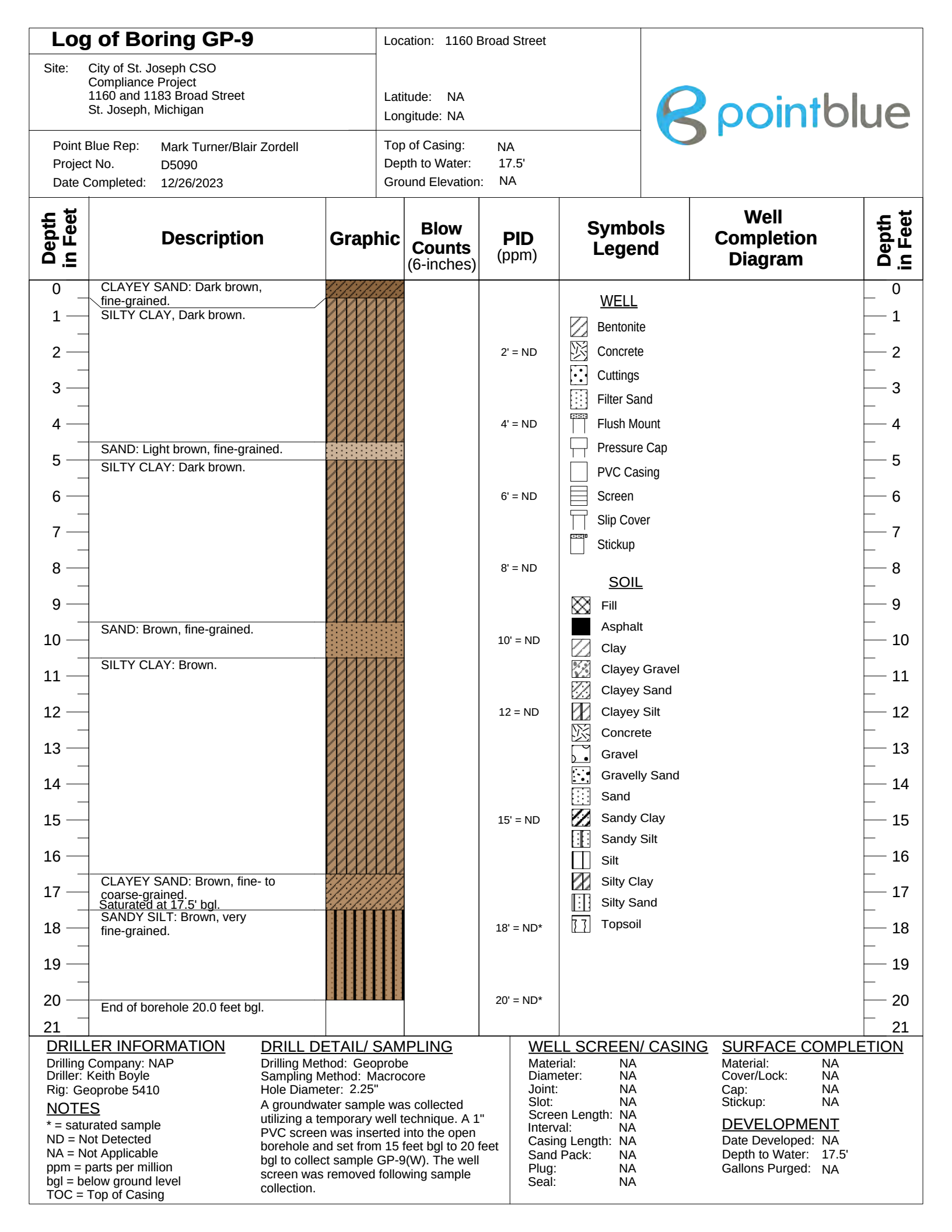
Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	CLAYEY SAND: Dark brown, fine-grained.			
1	SILTY CLAY, Dark brown.			
2				2' = ND
3				
4				4' = ND
5	SAND: Light brown, fine-grained.			
	SILTY CLAY: Dark brown.			
6				6' = ND
7				
8				8' = ND
9				
10	SAND: Brown, fine-grained.			10' = ND
11	SILTY CLAY: Brown.			
12				12 = ND
13				
14				
15				15' = ND
16				
17	CLAYEY SAND: Brown, fine- to coarse-grained. Saturated at 17.5' bgl.			
18	SANDY SILT: Brown, very fine-grained.			18' = ND*
19				
20	End of borehole 20.0 feet bgl.			20' = ND*
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram



DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

A groundwater sample was collected utilizing a temporary well technique. A 1" PVC screen was inserted into the open borehole and set from 15 feet bgl to 20 feet bgl to collect sample GP-9(W). The well screen was removed following sample collection.

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	17.5'
Gallons Purged:	NA

Log of Boring GP-10

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1160 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/26/2023

Top of Casing: NA
Depth to Water: 17.5'
Ground Elevation: NA

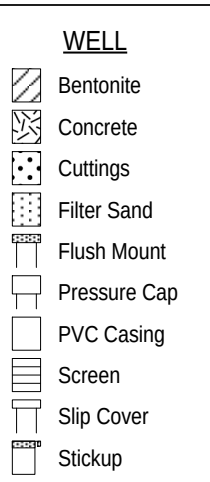
Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	CLAYEY SAND: Dark brown, fine-grained.			
1	SAND: Light brown, fine-grained.			
2				2' = ND
3				
4	SANDY CLAY: Brown, fine-grained, with some gravel.			4' = ND
5				
6				6' = ND
7				
8				8' = ND
9				
10	SAND: Brown/gray, fine-grained.			10' = ND
11				
12	SAND: Brown, fine- to medium-grained.			12 = ND
13				
14				
15				15' = ND
16	SANDY SILT: Brown, fine-grained.			
17	Saturated at 17.5' bgl.			
18				18' = ND*
19				
20	End of borehole 20.0 feet bgl.			20' = ND*
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram



DRILLER INFORMATION
Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

DRILL DETAIL/ SAMPLING
Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

NOTES
* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

WELL SCREEN/ CASING
Material: NA
Diameter: NA
Joint: NA
Slot: NA
Screen Length: NA
Interval: NA
Casing Length: NA
Sand Pack: NA
Plug: NA
Seal: NA

SURFACE COMPLETION
Material: NA
Cover/Lock: NA
Cap: NA
Stickup: NA

DEVELOPMENT
Date Developed: NA
Depth to Water: 17.5'
Gallons Purged: NA

Log of Boring GP-11

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1160 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/26/2023

Top of Casing: NA
Depth to Water: 15.0'
Ground Elevation: NA

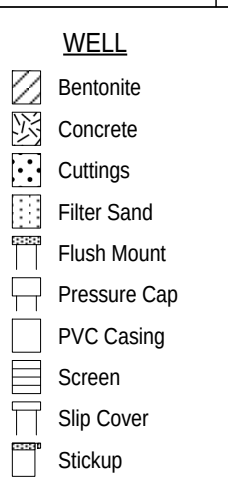
Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	CLAYEY SAND: Dark brown, fine-grained.			
1	SAND: Light brown, fine-grained.			
2				2' = ND
3				
4	SANDY CLAY: Gray, fine-grained.			4' = ND
5				
6				6' = ND
7				
8	SAND: Brown, fine- to medium-grained, with gravel and brick.			8' = ND
9				
10	SILTY CLAY: Brown, trace of fine sand.			10' = ND
11	SILTY SAND: Gray, fine-grained, with some gravel and clay.			
12				12 = ND
13				
14				
15	Saturated at 15.0' bgl.			15' = ND*
16				
17				
18	End of borehole 18.0 feet bgl.			18' = ND*
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram



Depth in Feet: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21

DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

A groundwater sample was collected utilizing a temporary well technique. A 1" PVC screen was inserted into the open borehole and set from 13 feet bgl to 18 feet bgl to collect sample GP-11(W). The well screen was removed following sample collection.

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	15.0'
Gallons Purged:	NA

Log of Boring GP-12

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1160 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/26/2023

Top of Casing: NA
Depth to Water: 7.5'
Ground Elevation: NA

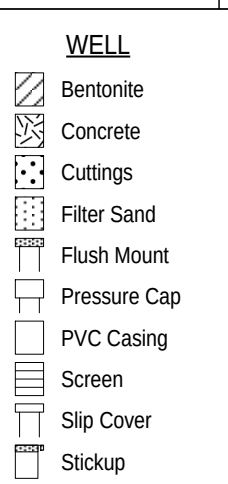
Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	CLAYEY SAND: Dark brown, fine-grained.			
1	SAND: Light brown, fine-grained.			
2				2' = ND
3				
4	SAND: Gray, fine-grained.			4' = ND
5	SAND: Light brown, fine-grained.			
6				6' = ND
7				
8	Saturated at 7.5' bgl.			8' = ND*
9	SILTY CLAY: Gray, with organics.			
10	SILTY SAND: Gray, fine-grained.			10' = ND*
11				
12	End of borehole 12.0 feet bgl.			12 = ND*
13	*Refusal encountered due to the presence of unknown obstruction at 12 feet bgl.			
14				
15				
16				
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram



Depth in Feet: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

A groundwater sample was collected utilizing a temporary well technique. A 1" PVC screen was inserted into the open borehole and set from 7 feet bgl to 12 feet bgl to collect sample GP-12(W). The well screen was removed following sample collection.

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	7.5'
Gallons Purged:	NA

Log of Boring GP-13

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1160 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/27/2023

Top of Casing: NA
Depth to Water: 4.0'
Ground Elevation: NA

Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	ASPHALT.			
1	SAND: Brown, fine- to medium-grained, with gravel.			
2	SAND: Black, fine-grained, with organics.			2' = ND
3				
4	SAND: Gray, fine-grained. Saturated at 4.0' bgl.			4' = ND*
5				
6				6' = ND*
7	SILTY CLAY: Gray, with some fine-grained sand.			
8				8' = ND*
9				
10	CLAYEY SILT: Brown.			10' = ND*
11				
12				12' = ND*
13				
14				
15	End of borehole 15.0 feet bgl.			15' = ND*
16				
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram

DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

A groundwater sample was collected utilizing a temporary well technique. A 1" PVC screen was inserted into the open borehole and set from 3 feet bgl to 8 feet bgl to collect sample GP-13(W). The well screen was removed following sample collection.

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	4.0'
Gallons Purged:	NA

Log of Boring GP-14

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1160 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/27/2023

Top of Casing: NA
Depth to Water: 3.5'
Ground Elevation: NA

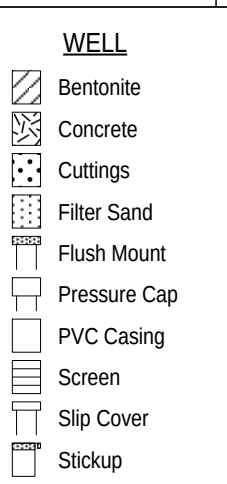
Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	CLAYEY SAND: Dark brown, fine-grained.			
1	SAND: Light brown, fine-grained.			
2	SANDY CLAY: Brown, fine-grained.			2' = ND
3	Saturated at 3.5' bgl.			
4	SAND: Gray, fine-grained.			4' = ND*
5				
6				6' = ND*
7				
8				8' = ND*
9				
10	CLAYEY SILT: Brown, with wood and organics.			10' = ND*
11				
12				12' = ND*
13				
14				
15	End of borehole 15.0 feet bgl.			15' = ND*
16				
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram



DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

A groundwater sample was collected utilizing a temporary well technique. A 1" PVC screen was inserted into the open borehole and set from 9.5 feet bgl to 14.5 feet bgl to collect sample GP-14(W). The well screen was removed following sample collection.

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	3.5'
Gallons Purged:	NA

Log of Boring GP-15

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1183 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/27/2023

Top of Casing: NA
Depth to Water: 3.5'
Ground Elevation: NA

Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	SANDY CLAY: Dark brown.			
1	SAND: Black, fine- to coarse-grained, with cinders.			
2				2' = ND
3	SAND: Dark gray, fine-grained. Saturated at 3.5' bgl.			3' = 1.0 ppm
4				
5				5' = 8.0 ppm*
6				
7	SANDY SILT: Dark gray, fine-grained.			7' = ND*
8				
9				
10				10' = ND*
11				
12				12' = ND*
13				
14				
15	End of borehole 15.0 feet bgl.			15' = ND*
16				
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram

DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

A groundwater sample was collected utilizing a temporary well technique. A 1" PVC screen was inserted into the open borehole and set from 5 feet bgl to 10 feet bgl to collect sample GP-15(W). The well screen was removed following sample collection.

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	3.5'
Gallons Purged:	NA

Log of Boring GP-16

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1183 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/27/2023

Top of Casing: NA
Depth to Water: 4.0'
Ground Elevation: NA

Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	ASPHALT.			
1	ASPHALT: Crushed, with crushed concrete.			
2				2' = ND
3	SANDY CLAY: Brown, fine-grained.			3' = 2.0 ppm
4	CLAYEY SILT: Very dark gray, trace of fine-grained sand. Saturated at 4.0' bgl.			
5				5' = 40 ppm*
6				
7				7' = 1.0 ppm*
8				
9				
10				10' = ND*
11				
12				12' = ND*
13				
14				
15	End of borehole 15.0 feet bgl.			15' = ND*
16				
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram

Depth in Feet: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	4.0'
Gallons Purged:	NA

Log of Boring GP-17

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1183 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/27/2023

Top of Casing: NA
Depth to Water: 5.5'
Ground Elevation: NA

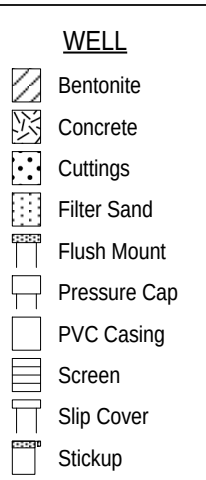
Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	ASPHALT.			
1	ASPHALT: Crushed, with crushed concrete.			
2	SAND: Very dark gray, fine- to medium-grained, with gravel.			2' = 215 ppm
3				3' = 315 ppm
4				4' = 400 ppm
5	Saturated at 5.5' bgl.			5' = 40 ppm
6	CLAYEY SILT: Very dark gray.			6' = 10 ppm*
7				
8				8' = 2.0 ppm*
9				
10				10' = 2.0 ppm*
11	SAND: Gray, fine- to medium-grained.			
12				
13				
14				
15	End of borehole 15.0 feet bgl.			15' = 1.0 ppm*
16				
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram



DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

A groundwater sample was collected utilizing a temporary well technique. A 1" PVC screen was inserted into the open borehole and set from 5 feet bgl to 10 feet bgl to collect sample GP-17(W). The well screen was removed following sample collection.

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	5.5'
Gallons Purged:	NA

Log of Boring GP-18

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1183 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/27/2023

Top of Casing: NA
Depth to Water: 5.5'
Ground Elevation: NA

Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	ASPHALT.			
1	SAND: Brown, fine- to medium-grained, with gravel.			
2	SAND: Very dark gray, fine- to medium-grained, with some clay.			
3				3' = 30 ppm
4	CLAYEY SILT: Very dark brown, with some fine-grained sand.			
5	Saturated at 5.5' bgl.			5' = 200 ppm
6	SAND: Gray, fine- to coarse-grained, with some gravel.			
7				7' = 100 ppm*
8				
9				
10				10' = ND*
11				
12				12' = ND*
13				
14				
15	End of borehole 15.0 feet bgl.			15' = ND*
16				
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram

Depth in Feet: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

A groundwater sample was collected utilizing a temporary well technique. A 1" PVC screen was inserted into the open borehole and set from 3.5 feet bgl to 8.5 feet bgl to collect sample GP-18(W). The well screen was removed following sample collection.

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	5.5'
Gallons Purged:	NA

Log of Boring GP-19

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1183 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/27/2023

Top of Casing: NA
Depth to Water: 5.5'
Ground Elevation: NA

Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	CLAYEY SAND: Brown/gray, coarse-grained, with crushed concrete.			
3	SILTY SAND: Very dark gray, fine-grained, with some clay.			3' = 20 ppm
5	SAND: Gray, fine-grained, with some silt. Saturated at 5.5' bgl.			5' = 120 ppm
8				8' = 10 ppm*
9	CLAYEY SILT: Very dark brown.			
10				10' = ND*
11	SAND: Gray, fine- to coarse-grained.			
15	End of borehole 15.0 feet bgl.			15' = ND*
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram

DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

A groundwater sample was collected utilizing a temporary well technique. A 1" PVC screen was inserted into the open borehole and set from 4.75 feet bgl to 9.75 feet bgl to collect sample GP-19(W). The well screen was removed following sample collection.

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	5.5'
Gallons Purged:	NA

Log of Boring GP-20

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1183 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/27/2023

Top of Casing: NA
Depth to Water: 5.0'
Ground Elevation: NA

Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	CLAYEY SAND:Brown, fine-grained, with gravel.			
1	SAND: Black, coarse-grained, with cinders.			
2				2' = 20 ppm
3	CLAYEY SILT: Gray. SAND: Gray, fine-grained.			
4				4' = 200 ppm
5	Saturated at 5.0' bgl.			
6	SANDY SILT: Gray, fine-grained.			6' = 30 ppm*
7				
8				8' = ND*
9				
10				10' = ND*
11	SAND: Gray, fine- to coarse-grained.			
12				
13				
14				
15	End of borehole 15.0 feet bgl.			15' = ND*
16				
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram

Depth in Feet: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	5.0'
Gallons Purged:	NA

Log of Boring GP-21

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1183 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/27/2023

Top of Casing: NA
Depth to Water: 5.0'
Ground Elevation: NA

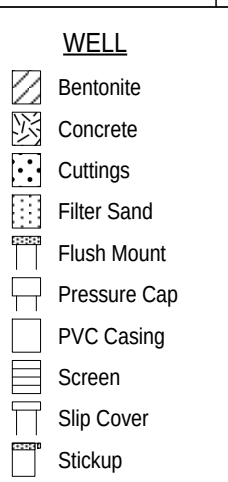
Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	CLAYEY SAND:Brown, fine-grained, with gravel.			
1	SAND: Black, coarse-grained, with cinders.			
2	SILTY SAND: Gray, fine-grained.			2' = ND
3				
4				4' = ND
5	SANDY SILT: Dark brown, fine-grained, with wood. Saturated at 5.0' bgl.			
6	SAND: Gray, fine-grained.			6' = ND*
7				
8				8' = ND*
9				
10	SILTY SAND: Gray, fine-grained.			10' = ND*
11	SAND: Gray, fine- to medium-grained.			
12				
13				
14				
15	End of borehole 15.0 feet bgl.			15' = ND*
16				
17				
18				
19				
20				
21				

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram



Depth in Feet: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

A groundwater sample was collected utilizing a temporary well technique. A 1" PVC screen was inserted into the open borehole and set from 5 feet bgl to 10 feet bgl to collect sample GP-21(W). The well screen was removed following sample collection.

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	5.0'
Gallons Purged:	NA

Log of Boring GP-22

Site: City of St. Joseph CSO Compliance Project
1160 and 1183 Broad Street
St. Joseph, Michigan

Location: 1183 Broad Street

Latitude: NA
Longitude: NA

Point Blue Rep: Mark Turner/Blair Zordell
Project No. D5090
Date Completed: 12/27/2023

Top of Casing: NA
Depth to Water: 5.5'
Ground Elevation: NA

Depth in Feet	Description	Graphic	Blow Counts (6-inches)	PID (ppm)
0	SANDY CLAY: Brown, fine-grained.			
2	SAND: Black, coarse-grained, with cinders.			2' = ND
4	SILTY CLAY: Brown, trace of fine-grained sand.			4' = ND
5	Saturated at 5.5' bgl.			
6				6' = ND*
8				8' = ND*
10				10' = ND*
11	SAND: Gray, fine- to coarse-grained.			
15	End of borehole 15.0 feet bgl.			15' = ND*

Symbols Legend

WELL
- Bentonite
- Concrete
- Cuttings
- Filter Sand
- Flush Mount
- Pressure Cap
- PVC Casing
- Screen
- Slip Cover
- Stickup

SOIL
- Fill
- Asphalt
- Clay
- Clayey Gravel
- Clayey Sand
- Clayey Silt
- Concrete
- Gravel
- Gravelly Sand
- Sand
- Sandy Clay
- Sandy Silt
- Silt
- Silty Clay
- Silty Sand
- Topsoil

Well Completion Diagram

DRILLER INFORMATION

Drilling Company: NAP
Driller: Keith Boyle
Rig: Geoprobe 5410

NOTES

* = saturated sample
ND = Not Detected
NA = Not Applicable
ppm = parts per million
bgl = below ground level
TOC = Top of Casing

DRILL DETAIL/ SAMPLING

Drilling Method: Geoprobe
Sampling Method: Macrocore
Hole Diameter: 2.25"

A groundwater sample was collected utilizing a temporary well technique. A 1" PVC screen was inserted into the open borehole and set from 9 feet bgl to 14 feet bgl to collect sample GP-22(W). The well screen was removed following sample collection.

WELL SCREEN/ CASING

Material:	NA
Diameter:	NA
Joint:	NA
Slot:	NA
Screen Length:	NA
Interval:	NA
Casing Length:	NA
Sand Pack:	NA
Plug:	NA
Seal:	NA

SURFACE COMPLETION

Material:	NA
Cover/Lock:	NA
Cap:	NA
Stickup:	NA

DEVELOPMENT

Date Developed:	NA
Depth to Water:	5.5'
Gallons Purged:	NA

Appendix C

Low-Flow Sample Logs

LOW-FLOW GROUNDWATER SAMPLING LOG

			Page: 1 of 1
Site: 1160 ~~Pier 39~~ Broad St. St. Joseph, MI		Depth to Water (ft. from TOC): 5.50	Screen from: 5' to 10'
Monitor Well ID: GP-2		Pump Type: □ Impeller x Peristaltic □ Other	Pump Intake Depth (ft. from TOC): 9.8
Date: 12-26-23		Meter: x Horiba U-52 □ YSI 6920 □ Other	Purge Rate (mL/min): 500 dl/m
Point Blue Project No.: D 5090		Weather/Temperature (Degrees F): 48 / cloudy	Volume Purged (Gallons): ~~2.5~~ 1.5

Time (24 hr)	Depth to Water (ft)	Temperature (°C)	Specific Conductivity (mS/cm)	pH (SU)	Dissolved O_2 (mg/L)	Turbidity (NTU)	ORP (mV)
0952	NA	12.01	1.14	6.21	0.99	917	-8
0957	NA	12.05	1.16	6.13	1.40	625	-18
1002	NA	12.09	1.18	6.10	1.43	540	-27
1007	NA	12.09	1.18	6.09	1.49	139	-30
1012	NA	12.08	1.18	6.09	1.45	128	-32
Stabilization Criteria		+/- 3%	+/- 3%	+/- 0.1	+/- 10%	+/- 10%	+/- 10 mV
		(YES) NO	(YES) NO	(YES) NO	(YES) NO	(YES) NO	(YES) NO
Typical Range		5.5 to 13.9°C	0.50 to 50 mS/cm	6 to 8.5	0 to 12 mg/L	NA	400 to -800 mV

Notes:

Sample Time: 1015

Sampled For: (VOCs) Op Memo 14 (PNAs) Pb Other: Mercury

Sampler: *Blair Zordell*

Signature:

pointblue

LOW-FLOW GROUNDWATER SAMPLING LOG

Site: ~~Pier 33~~ 1160 Broad St. St. Joseph, MI	Depth to Water (ft. from TOC): 15.0'		Page: 1 of 1
Monitor Well ID: GP-4	Pump Type: □ Impeller x Peristaltic □ Other		Screen from: 10 to 15
Date: 12-26-23	Meter: x Horiba U-52 □ YSI 6920 □ Other		Pump Intake Depth (ft. from TOC): 15
Point Blue Project No.: D 5090	Weather/Temperature (Degrees F): 45 cloudy		Purge Rate (mL/min): 500ml/m
			Volume Purged (Gallons): 0.9

Time (24 hr)	Depth to Water (ft)	Temperature (°C)	Specific Conductivity (mS/cm)	pH (SU)	Dissolved O_2 (mg/L)	Turbidity (NTU)	ORP (mV)
1120	15'	12.51	1.19	6.21	5.30	180	-37
1125	↓	13.41	1.18	6.05	3.52	178	-46
1130		13.94	1.17	6.01	3.05	170	-51
1135	↓	14.12	1.16	6.02	3.19	172	-54

Stabilization Criteria	+/- 3%	+/- 3%	+/- 0.1	+/- 10%	+/- 10%	+/- 10 mV
	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
Typical Range	5.5 to 13.9°C	0.50 to 50 mS/cm	6 to 8.5	0 to 12 mg/L	NA	400 to -800 mV

Notes:

Sample Time: 1137

Sampled For: VOCs Op Memo 14 PNAs Pb Other: metals

Sampler: *Blair Zordell*

Signature:

pointblue

LOW-FLOW GROUNDWATER SAMPLING LOG

Site: ~~Pier 33~~ 1160 Broad ST St. Joseph, MI	Depth to Water (ft. from TOC): 10	Page: 1 of 1 Screen from: 5 to 10
Monitor Well ID: GP - 6	Pump Type: □ Impeller x Peristaltic □ Other	Pump Intake Depth (ft. from TOC): 9.5
Date: 12-26-23	Meter: x Horiba U-52 □ YSI 6920 □ Other	Purge Rate (mL/min): ~500 mL/min → 600 mL/min
Point Blue Project No.: D 5090	Weather/Temperature (Degrees F): 42 overcast	Volume Purged (Gallons): 0.6 Low Produced

Time (24 hr)	Depth to Water (ft)	Temperature (°C)	Specific Conductivity (mS/cm)	pH (SU)	Dissolved O_2 (mg/L)	Turbidity (NTU)	ORP (mV)
1330	10'	9.91	1.95	6.70	7.17	764	-87
1335	10'	9.88	1.96	6.69	6.87	428	-89
1340	10'	9.84	1.96	6.71	6.60	294	-91
1345	10'	9.80	1.96	6.70	6.61	2.87	-90
Stabilization Criteria		+/- 3% YES NO	+/- 3% YES NO	+/- 0.1 YES NO	+/- 10% YES NO	+/- 10% YES NO	+/- 10 mV YES NO
Typical Range		5.5 to 13.9°C	0.50 to 50 mS/cm	6 to 8.5	0 to 12 mg/L	NA	400 to -800 mV

Notes: Sample Time: 1346

Sampled For: VOCs Op Memo 14 PNAs Pb Other: Metals

Sampler: *Blair Zordell* Signature:

pointblue

LOW-FLOW GROUNDWATER SAMPLING LOG

Site: ~~Pier 33~~ 1160 Broad ST. St. Joseph, MI	Depth to Water (ft. from TOC): 15	Page: 1 of 1
Monitor Well ID: GP-9	Pump Type: □ Impeller x Peristaltic □ Other	Screen from: 15 to 20
Date: 12-26-23	Meter: x Horiba U-52 □ YSI 6920 □ Other	Pump Intake Depth (ft. from TOC): 19
Point Blue Project No.: 0 5090	Weather/Temperature (Degrees F): mist/Rain overcast / 45	Purge Rate (mL/min): ~~500~~ 250 mL/min
		Volume Purged (Gallons): 1.5

Time (24 hr)	Depth to Water (ft)	Temperature (°C)	Specific Conductivity (mS/cm)	pH (SU)	Dissolved O_2 (mg/L)	Turbidity (NTU)	ORP (mV)
1510	15	14.94	0.958	6.49	3.49	724	13
1515		14.85	0.967	6.50	3.20	234	14
1520		14.75	0.955	6.49	3.11	230	11
1525						235	

Stabilization Criteria	+/- 3%	+/- 3%	+/- 0.1	+/- 10%	+/- 10%	+/- 10 mV
	(YES) NO	(YES) NO	(YES) NO	(YES) NO	(YES) NO	(YES) NO
Typical Range	5.5 to 13.9°C	0.50 to 50 mS/cm	6 to 8.5	0 to 12 mg/L	NA	400 to -800 mV

Notes:

Sample Time: ~~1522~~ 1527

Sampled For: (VOCs) Op Memo 14 (PNAs) Pb Other: nutrients

Sampler: *Blair Zordell*

Signature:

pointblue

LOW-FLOW GROUNDWATER SAMPLING LOG

Site: ~~Pier 33~~ 1160 Broad ST St. Joseph, MI	Depth to Water (ft. from TOC): 20	Page: 1 of 1
Monitor Well ID: GP-11	Pump Type: □ Impeller x Peristaltic □ Other	Screen from: 15 to 20
Date: 12-26-23	Meter: x Horiba U-52 □ YSI 6920 □ Other	Pump Intake Depth (ft. from TOC): 19
Point Blue Project No.: 13 D5090	Weather/Temperature (Degrees F): 40 MST overcast	Purge Rate (mL/min): 500 mL/m
		Volume Purged (Gallons): 1.2

Time (24 hr)	Depth to Water (ft)	Temperature (°C)	Specific Conductivity (mS/cm)	pH (SU)	Dissolved O_2 (mg/L)	Turbidity (NTU)	ORP (mV)
1618	20	13.36	1.14	7.20	4.80	700	-53
1623	20	13.41	1.14	7.05	1.73	380	-55
1628	20	14.10	1.11	7.17	1.63	370	-69
1632	20	14.12	1.12	7.18	1.73	370	-70
Stabilization Criteria		+/- 3%	+/- 3%	+/- 0.1	+/- 10%	+/- 10%	+/- 10 mV
		YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
Typical Range		5.5 to 13.9°C	0.50 to 50 mS/cm	6 to 8.5	0 to 12 mg/L	NA	400 to -800 mV

Notes:

Sample Time: 1635

Sampled For: VOCs Op Memo 14 PNAs Pb Other: Methane

Sampler: *Blair Zordell*

Signature:

pointblue

LOW-FLOW GROUNDWATER SAMPLING LOG

Site: ~~Pier 33~~ 1160 Broad St St. Joseph, MI	Depth to Water (ft. from TOC): 10	Page: 1 of 1
Monitor Well ID: GP-12	Pump Type: □ Impeller x Peristaltic □ Other	Screen from: 10 to 15
Date: 12-27-23	Meter: x Horiba U-52 □ YSI 6920 □ Other	Pump Intake Depth (ft. from TOC): 14.5
Point Blue Project No.: D5090	Weather/Temperature (Degrees F): Clear 28°	Purge Rate (mL/min): 500ml/m
		Volume Purged (Gallons): 3.0

Time (24 hr)	Depth to Water (ft)	Temperature (°C)	Specific Conductivity (mS/cm)	pH (SU)	Dissolved O2 (mg/L)	Turbidity (NTU)	ORP (mV)
0805	10	10.40	1.40	7.47	4.05	75.8	-37
0810	10	10.15	1.50	7.31	3.12	0.0	-103
0815	10	10.07	1.49	7.28	2.87	0.0	-120
0822	10	10.15	1.49	7.28	3.47	0.0	-125
0827	10	10.18	1.49	7.28	2.49	0.0	-128
0832	10	10.25	1.45	7.29	3.25	0.0	-129
0837	10	10.33	1.46	7.28	3.15	0.0	-132
Stabilization Criteria		+/- 3%	+/- 3%	+/- 0.1	+/- 10%	+/- 10%	+/- 10 mV
		YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
Typical Range		5.5 to 13.9°C	0.50 to 50 mS/cm	6 to 8.5	0 to 12 mg/L	NA	400 to -800 mV

Notes: DUPS for ~~All~~ Parameters (metals, VOA, PNA) Sample Time: 0838 / ~~0839~~ 0840

Sampled For: (VOCs) Op Memo 14 (PNAs) Pb Other: metals, Pesticides, LLHg, PFOA, phenols, OPs

Sampler: Blair Zordell Signature:

pointblue

LOW-FLOW GROUNDWATER SAMPLING LOG

Site: ~~Pier 33~~ 1160 Broadway St. Joseph, MI	Depth to Water (ft. from TOC): 3	Page: 1 of 1
Monitor Well ID: GP-13	Pump Type: □ Impeller x Peristaltic □ Other	Screen from: 3 to 8
Date: 12-27-23	Meter: x Horiba U-52 □ YSI 6920 □ Other	Pump Intake Depth (ft. from TOC): 7.8
Point Blue Project No.: ~~10-585~~ 5090	Weather/Temperature (Degrees F): 30 / clear	Purge Rate (mL/min): 500mL/m
		Volume Purged (Gallons): 2.0

Time (24 hr)	Depth to Water (ft)	Temperature (°C)	Specific Conductivity (mS/cm)	pH (SU)	Dissolved O_2 (mg/L)	Turbidity (NTU)	ORP (mV)
0944	3	8.55	6.03	7.46	4.02	185	-139
0950	3	8.74	6.07	7.47	2.57	203	-148
0956	3	8.82	6.09	7.48	2.34	126	-158
1001	3	8.86	6.10	7.49	2.23	26.0	-162
1006	3	8.88	6.10	7.50	2.46	20.0	-160
Stabilization Criteria		+/- 3%	+/- 3%	+/- 0.1	+/- 10%	+/- 10%	+/- 10 mV
		YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
Typical Range		5.5 to 13.9°C	0.50 to 50 mS/cm	6 to 8.5	0 to 12 mg/L	NA	400 to -800 mV

Notes:

Sample Time: 1008

Sampled For: VOCs Op Memo 14 PNAs Pb Other: VOCs notch

Sampler: *Blair Zordell*

Signature:

pointblue

LOW-FLOW GROUNDWATER SAMPLING LOG

Site: ~~Pier 33~~ 1160 Pratt St, St. Joseph, MI	Depth to Water (ft. from TOC): 10	Page: 1 of	
Monitor Well ID: CP-14	Pump Type: □ Impeller x Peristaltic □ Other	Screen from: ~~10~~ 9.4 to ~~15~~ 9	Pump Intake Depth (ft. from TOC): ~~14.8~~ 8.5
Date: 12-27-23	Meter: x Horiba U-52 □ YSI 6920 □ Other	Purge Rate (mL/min): 500 mL/min	
Point Blue Project No.: D.5090	Weather/Temperature (Degrees F):	Volume Purged (Gallons): 3	

Time (24 hr)	Depth to Water (ft)	Temperature (°C)	Specific Conductivity (mS/cm)	pH (SU)	Dissolved O_2 (mg/L)	Turbidity (NTU)	ORP (mV)
1018	14.5	7.75	0.016	7.54	8.37	123	-153
1029	14.5	7.86	3.00	7.73	5.93	48	-141
*							
Stabilization Criteria		+/- 3%	+/- 3%	+/- 0.1	+/- 10%	+/- 10%	+/- 10 mV
		YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
Typical Range		5.5 to 13.9°C	0.50 to 50 mS/cm	6 to 8.5	0 to 12 mg/L	NA	400 to -800 mV

Notes: * Non Productive — < 500 mL/min Pulled Sample Late

Sample Time: 1050

Sampled For: VOCs Op Memo 14 PNAs Pb Other:

Sampler: *Blair Zordell*

Signature:

pointblue

LOW-FLOW GROUNDWATER SAMPLING LOG

Site: Pier 33 1160 Broad St St. Joseph, MI		Depth to Water (ft. from TOC):	Page: 1 of 1 Screen from: 84 to ~~104~~ 94
Monitor Well ID: GP-15		Pump Type: □ Impeller x Peristaltic □ Other	Pump Intake Depth (ft. from TOC): 89
Date: 12-27-23		Meter: x Horiba U-52 □ YSI 6920 □ Other	Purge Rate (mL/min): Sound
Point Blue Project No.: D-5090		Weather/Temperature (Degrees F): Clear 40°	Volume Purged (Gallons): 1.0

Time (24 hr)	Depth to Water (ft)	Temperature (°C)	Specific Conductivity (mS/cm)	pH (SU)	Dissolved O2 (mg/L)	Turbidity (NTU)	ORP (mV)
1103	8.8	10.04	1.32	7.38	9.10	16.2	-124
1111	8.8	10.52	1.33	7.28	4.00	0.0	-130
1116	8.8	10.50	1.33	7.26	4.50	0.0	-129
1120	8.8	10.50	1.33	7.25	4.10	0.0	-130

Stabilization Criteria	+/- 3%	+/- 3%	+/- 0.1	+/- 10%	+/- 10%	+/- 10 mV
	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
Typical Range	5.5 to 13.9°C	0.50 to 50 mS/cm	6 to 8.5	0 to 12 mg/L	NA	400 to -800 mV

Notes:

Sample Time: 1120

Sampled For: VOCs Op Memo 14 PNAs Pb Other:

Sampler: *Blair Zordell*

Signature:

pointblue

LOW-FLOW GROUNDWATER SAMPLING LOG

Site: St. Joseph, MI	Depth to Water (ft. from TOC): 9	Page: 1 of 1
Monitor Well ID: GP-#6 17	Pump Type: □ Impeller x Peristaltic □ Other	Screen from: 5 to 10
Date: 12-27-23	Meter: x Horiba U-52 □ YSI 6920 □ Other	Pump Intake Depth (ft. from TOC): 9
Point Blue Project No.: D 5090	Weather/Temperature (Degrees F): 40/ clear	Purge Rate (mL/min): 200 mL/min
		Volume Purged (Gallons): 1.2

Time (24 hr)	Depth to Water (ft)	Temperature (°C)	Specific Conductivity (mS/cm)	pH (SU)	Dissolved O_2 (mg/L)	Turbidity (NTU)	ORP (mV)
1325	9	13.65	1.69	7.37	1.64	563	-133
1330	9	13.75	1.70	7.33	1.18	148	-134
1340	9	13.70	1.68	7.33	0.99	121	-137
1345	9	13.77	1.70	7.31	1.06	47.1	-137
1350	9	13.81	1.69	7.31	0.96	37.2	-138
1400	9	13.80	1.69	7.31	1.04	35.0	-139

Stabilization Criteria	+/- 3%	+/- 3%	+/- 0.1	+/- 10%	+/- 10%	+/- 10 mV
	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
Typical Range	5.5 to 13.9°C	0.50 to 50 mS/cm	6 to 8.5	0 to 12 mg/L	NA	400 to -800 mV

Notes: Full set / ODOR noted

Sample Time: 1401

Sampled For: VOCs Op Memo 14 PNAs Pb Other: metals / Lithy, Pest, Phenol, OP6

Sampler: Blair Zordell

Signature:

pointblue

LOW-FLOW GROUNDWATER SAMPLING LOG

Site: 1160 Bread St St. Joseph, MI	Depth to Water (ft. from TOC): 8	Page: 1 of 1	
Monitor Well ID: GP-18	Pump Type: □ Impeller x Peristaltic □ Other	Screen from: 5 to 10	Pump Intake Depth (ft. from TOC): 8
Date: 12-27-23	Meter: x Horiba U-52 □ YSI 6920 □ Other	Purge Rate (mL/min): 100 mL/m	
Point Blue Project No.: D-5090	Weather/Temperature (Degrees F): clear 40	Volume Purged (Gallons): 1.5	

Time (24 hr)	Depth to Water (ft)	Temperature (°C)	Specific Conductivity (mS/cm)	pH (SU)	Dissolved O_2 (mg/L)	Turbidity (NTU)	ORP (mV)
1411		13.85	1.65	7.41	3.62	376	-122
1416		14.07	1.01	7.40	3.51	286	-120
1424		13.83	0.926	7.40	3.70	153	-121
1435		12.38	0.954	7.39	3.60	120	-120
1440		12.94	0.963	7.39	3.65	129	-120
Stabilization Criteria		+/- 3%	+/- 3%	+/- 0.1	+/- 10%	+/- 10%	+/- 10 mV
		YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
Typical Range		5.5 to 13.9°C	0.50 to 50 mS/cm	6 to 8.5	0 to 12 mg/L	NA	400 to -800 mV

Notes: Pet. odor N dtd

Sample Time: 1448

Sampled For: VOCs Op Memo 14 PNAs Pb Other: methane

Sampler: Blair Zordell

Signature:

pointblue

LOW-FLOW GROUNDWATER SAMPLING LOG

Site: 1160 Broad ST. St. Joseph, MI	Depth to Water (ft. from TOC): 10'	Page: 1 of	
Monitor Well ID: GP-19	Pump Type: □ Impeller x Peristaltic □ Other	Screen from: 10 to 15	Pump Intake Depth (ft. from TOC): 14.5
Date: 12-27-23	Meter: x Horiba U-52 □ YSI 6920 □ Other	Purge Rate (mL/min): 200mL	
Point Blue Project No.: D. Sow	Weather/Temperature (Degrees F): 40 / clear	Volume Purged (Gallons): 1.2	

Time (24 hr)	Depth to Water (ft)	Temperature (°C)	Specific Conductivity (mS/cm)	pH (SU)	Dissolved O_2 (mg/L)	Turbidity (NTU)	ORP (mV)
1524		11.84	0.666	7.34	4.90	380	-113
1530		11.85	0.601	7.31	3.93	295	-112
1535		11.80	0.566	7.30	3.18	175	-112
1540		11.80	0.552	7.29	2.72	144	-112
1545		11.81	0.548	7.28	2.35	107	-112
1550		11.81	0.547	7.28	2.31	101	-112
1600		11.81	0.542	7.28	2.28	93.0	-112

Stabilization Criteria	+/- 3%	+/- 3%	+/- 0.1	+/- 10%	+/- 10%	+/- 10 mV
	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
Typical Range	5.5 to 13.9°C	0.50 to 50 mS/cm	6 to 8.5	0 to 12 mg/L	NA	400 to -800 mV

Notes: Duplicate Set

Sample Time: 1601 / 1603

Sampled For: VOCs Op Memo 14 PNAs Pb Other: metals

Sampler: Blair Zordell

Signature:

pointblue

LOW-FLOW GROUNDWATER SAMPLING LOG

Site: St. Joseph, MI	Depth to Water (ft. from TOC): 8'	Page: 1 of 1
Monitor Well ID: GP-24	Pump Type: □ Impeller x Peristaltic □ Other	Screen from: 5 to 10
Date: 12-27-23	Meter: x Horiba U-52 □ YSI 6920 □ Other	Pump Intake Depth (ft. from TOC): 9.2
Point Blue Project No.: D 5090	Weather/Temperature (Degrees F): 40 / clear	Purge Rate (mL/min): 500 ~~200mL~~
		Volume Purged (Gallons): 2.5

Time (24 hr)	Depth to Water (ft)	Temperature (°C)	Specific Conductivity (mS/cm)	pH (SU)	Dissolved O_2 (mg/L)	Turbidity (NTU)	ORP (mV)
1610		11.57	0.823	7.07	3.32	0.0	-112
1615		11.59	0.831	7.11	1.00	0.0	-120
1620		11.83	0.822	7.14	0.57	0.0	-126
1625		11.93	0.818	7.14	0.53	0.0	-126
Stabilization Criteria		+/- 3%	+/- 3%	+/- 0.1	+/- 10%	+/- 10%	+/- 10 mV
		YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
Typical Range		5.5 to 13.9°C	0.50 to 50 mS/cm	6 to 8.5	0 to 12 mg/L	NA	400 to -800 mV

Notes:

Sample Time: 1626

Sampled For: VOCs Op Memo 14 PNAs Pb Other: Metals

Sampler: *Blair Zordell*

Signature:

pointblue

LOW-FLOW GROUNDWATER SAMPLING LOG

Site: 1160 Broad St St. Joseph, MI	Depth to Water (ft. from TOC): 9	Page: 1 of 1
Monitor Well ID: GP-22	Pump Type: □ Impeller x Peristaltic □ Other	Screen from: 5 to 10
Date: 12-27-22	Meter: x Horiba U-52 □ YSI 6920 □ Other	Pump Intake Depth (ft. from TOC): 8
Point Blue Project No.: P-5050	Weather/Temperature (Degrees F): 35 Clear	Purge Rate (mL/min): Grab
		Volume Purged (Gallons): 2.10

Time (24 hr)	Depth to Water (ft)	Temperature (°C)	Specific Conductivity (mS/cm)	pH (SU)	Dissolved O_2 (mg/L)	Turbidity (NTU)	ORP (mV)
1640	8	10.84	0.767	7.38	4.83	0.0	-127
1645	8	10.89	0.768	7.36	4.50	0.0	-119
1650	8	10.93	0.745	7.31	4.15	0.0	-113
1655	8	10.93	0.744	7.30	4.23	0.0	-111

Stabilization Criteria	+/- 3%	+/- 3%	+/- 0.1	+/- 10%	+/- 10%	+/- 10 mV
	(YES) NO	(YES) NO	(YES) NO	(YES) NO	(YES) NO	(YES) NO
Typical Range	5.5 to 13.9°C	0.50 to 50 mS/cm	6 to 8.5	0 to 12 mg/L	NA	400 to -800 mV

Notes:

Sample Time: 1656

Sampled For: (VOCs) Op Memo 14 (PNAs) Pb Other: Methane

Sampler: *Blair Zordell*

Signature:

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Appendix D

Tables

Table 1 (Page 1 of 4)
Results of Laboratory Analysis - Soil
City of St. Joseph
CSO Compliance Project
St. Joseph, Michigan

Project No. D5090

Parameter	Units	TDL	SDBL	Residential DWP	Nonresidential DWP	GSIP	Residential DC	Nonresidential DC	Nonresidential VSIC	Residential PSIC	Nonresidential PSIC	GP-1(4')	GP-2(3')	GP-3(2.5')	GP-4(3')	GP-5(3')	GP-6(3')
Date Collected												**12/26/2023**	**12/26/2023**	**12/26/2023**	**12/26/2023**	**12/26/2023**	**12/26/2023**
Mercury - Date Analyzed												**1/5/2024**	**1/5/2024**	**1/5/2024**	**1/5/2024**	**1/5/2024**	**1/5/2024**
Mercury	mg/kg	0.05	**0.13**	1.7	1.7	**0.050(M)**	160	580	62	20,000	8,800	ND	ND	ND	ND	ND	**0.19**
Metals - Date Analyzed												**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**
Arsenic	mg/kg	2	**5.8**	**4.6**	**4.6**	**4.6**	**7.6**	37	NLV	720	910	**4.7**	**2.7**	**6.4**	**3.5**	ND	**4.1**
Barium	mg/kg	1	75	1,300	1,300	430*	37,000	130,000	NLV	330,000	150,000	**60**	**11**	**89**	**48**	ND (9.5)	**64**
Cadmium	mg/kg	0.2	1.2	6	6	3*	550	2,100	NLV	1,700	2,200	**0.27**	ND	**0.80**	ND	ND	**0.83**
Chromium	mg/kg	2	18	30	30	2,900,000*	2,500	9,200	NLV	330,000	150,000	**5.3**	**4.7**	**6.4**	**3.4**	ND	**12**
Copper	mg/kg	1	32	5,800	5,800	69*	20,000	73,000	NLV	130	59,000	**13**	**4.7**	**15**	**5.1**	ND	**23**
Lead	mg/kg	10	21	700	700	2,500*	400	900 (DD)	NLV	100,000	44,000	**74**	**34**	**50**	ND	ND	**110**
Selenium	mg/kg	0.2	**0.41**	4	4	**0.40**	2,600	9,600	NLV	130,000	59,000	**1.7**	**0.58**	**2.5**	**1.7**	ND (0.57)	**1.6**
Silver	mg/kg	0.1	1	4.5	13	0.10(M)	2,500	9,000	NLV	6,700	2,900	ND (0.46)	ND (0.49)	ND (0.48)	ND (0.45)	ND (0.47)	ND (0.48)
Zinc	mg/kg	1	**47**	2,400	5,000	**140***	170,000	630,000	NLV	ID	ID	**57**	**25**	**94**	**20**	**6.5**	**230**
VOCs - Date Analyzed												**1/3/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**
Cyclohexane	µg/kg	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
Toluene	µg/kg	100	NA	16,000	16,000	5,400	50,000,000 (C)	160,000,000 (C)	3,300,000	27,000,000,000	12,000,000,000	ND	ND	ND	ND	ND	ND
Tetrachloroethene	µg/kg	50	NA	**100**	**100**	580**	200,000 (C)	930,000	210,000	1,200,000,000	1,200,000,000	**130**	ND	ND	ND	ND	ND
Chlorobenzene	µg/kg	50	NA	2,000	2,000	500	4,300,000 (C)	14,000,000	920,000	4,700,000,000	2,100,000,000.0	ND	ND	ND	ND	ND	ND
Ethylbenzene	µg/kg	50	NA	1,500	1,500	360	22,000,000 (C)	71,000,000 (C)	2,400,000	10,000,000,000	13,000,000,000	ND	ND	ND	ND	ND	ND
Xylenes, Total	µg/kg	150	NA	5,600	5,600	980	410,000,000 (C)	1,000,000,000 (C)	54,000,000	290,000,000,000	130,000,000,000	ND	ND	ND	ND	ND	ND
Isopropylbenzene	µg/kg	250	NA	91,000	260,000	3,200	25,000,000 (C)	80,000,000	2,000,000	5,800,000,000	2,600,000,000	ND	ND	ND	ND	ND	ND
n-Propylbenzene	µg/kg	100	NA	1,600	4,600	ID	2,500,000	8,000,000	ID	1,300,000,000	5,900,000,000.0	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	µg/kg	100	NA	1,800	1,800	1,100	32,000,000 (C)	100,000,000 (C)	19,000,000	82,000,000,000	36,000,000,000	ND	ND	ND	ND	ND	ND
t-Butyl Benzene	µg/kg	50	NA	1,600	4,600	ID	2,500,000	8,000,000	ID	670,000,000	290,000,000	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	µg/kg	100	NA	2,100	2,100	570	32,000,000(C)	100,000,000 (C)	25,000,000	82,000,000,000	36,000,000,000	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	µg/kg	50	NA	1,600	4,600	ID	2,500,000	8,000,000	ID	400,000,000	290,000,000	ND	ND	ND	ND	ND	ND
n-Butylbenzene	µg/kg	50	NA	1,600	4,600	ID	2,500,000	8,000,000	ID	2,000,000,000	880,000,000	ND	ND	ND	ND	ND	ND
1,2,3-Trimethylbenzene	µg/kg	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	µg/kg	330	NA	57,000	170,000	4,200	8,100,000	26,000,000	4,900,000	2,700,000	290,000,000	ND	ND	ND	ND	ND	ND
All Other VOCs	µg/kg	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	ND	ND	ND	ND	ND	ND
PNAs - Date Analyzed												**1/2/2024**	**1/2/2024**	**1/2/2024**	**1/2/2024**	**1/2/2024**	**1/2/2024**
Naphthalene	µg/kg	330	NA	35,000	100,000	**730**	16,000,000	52,000,000	350,000	200,000,000	88,000,000	**940**	ND (910)	ND	ND	ND	ND (490)
2-Methylnaphthalene	µg/kg	330	NA	57,000	170,000	4,200	8,100,000	26,000,000	1,800,000	2,700,000	2,900,000,000	ND (1,100)	ND (2,300)	ND (480)	ND	ND	ND (1,200)
Acenaphthene	µg/kg	330	NA	300,000	880,000	8,700	41,000,000	130,000,000	97,000,000	14,000,000,000	6,200,000,000	**700**	ND (910)	ND	ND	ND	ND (490)
Fluorene	µg/kg	330	NA	390,000	890,000	5,300	27,000,000	87,000,000	150,000,000	580,000,000	4,100,000,000	**570**	ND (910)	ND	ND	ND	ND (490)
Phenanthrene	µg/kg	330	NA	56,000	160,000	**2,100**	1,600,000	5,200,000	190,000	6,700,000	2,900,000	**4,500**	**8,000**	ND	ND	ND	**3,500**
Anthracene	µg/kg	330	NA	41,000	41,000	ID	230,000,000	730,000,000	1,600,000,000	67,000,000,000	29,000,000,000	**850**	**1,900**	ND	ND	ND	ND (490)
Fluoranthene	µg/kg	330	NA	730,000	730,000	**5,500**	46,000,000	130,000,000	890,000,000	9,300,000,000	4,100,000,000	**4,800**	**14,000**	**350**	ND	ND	**3,300**
Pyrene	µg/kg	330	NA	480,000	480,000	ID	29,000,000	84,000,000	780,000,000	1,000,000,000	2,900,000,000	**3,800**	**11,000**	ND	ND	ND	**2,500**
Benzo(a)anthracene	µg/kg	330	NA	NLL	NLL	NLL	20,000	80,000	NLV	NLV	ID	**2,000**	**5,500**	ND	ND	ND	**950**
Chrysene	µg/kg	330	NA	NLL	NLL	NLL	2,000,000	8,000,000	ID	ID	ID	**1,900**	**5,500**	ND	ND	ND	**1,100**
Benzo(b)fluoranthene	µg/kg	330	NA	NLL	NLL	NLL	20,000	80,000	ID	ID	ID	**2,300**	**7,300**	ND	ND	ND	**1,700**
Benzo(k)fluoranthene	µg/kg	330	NA	NLL	NLL	NLL	200,000	800,000	NLV	NLV	ID	**940**	**2,200**	ND	ND	ND	**560**
Benzo(a)pyrene	µg/kg	330	NA	NLL	NLL	NLL	**2,000**	8,000	NLV	NLV	1,900,000	**2,000**	**5,800**	ND	ND	ND	**1,400**
Indeno(1,2,3-cd)pyrene	µg/kg	330	NA	NLL	NLL	NLL	20,000	80,000	NLV	NLV	ID	**1,200**	**3,200**	ND	ND	ND	**750**
Dibenzo(a,h)anthracene	µg/kg	330	NA	NLL	NLL	NLL	2,000	8,000	NLV	NLV	ID	ND	**770**	ND	ND	ND	ND
Benzo(g,h,i)perylene	µg/kg	330	NA	NLL	NLL	NLL	2,500,000	7,000,000	NLV	NLV	350,000,000	**970**	**2,600**	ND	ND	ND	**590**
All Other PNAs	µg/kg	330	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	ND	ND	ND	ND	ND	ND

Notes:

Samples collected by Point Blue, LLC and analyzed by Trace Analytical Laboratories, Inc. of Muskegon, Michigan.

SDBL = Statewide Default Background Levels established Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Residential DWP = Generic Residential Cleanup Criteria - Drinking Water Protection criteria established in Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Nonresidential DWP = Generic Nonresidential Cleanup Criteria - Drinking Water Protection criteria established in Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

GSIP = Groundwater Surface Water Interface Protection criteria established in Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

*Calculated GSI criterion based on the May 2021 City of St. Joseph Water Filtration Plant report documenting the receiving water body (Lake Michigan) hardness of 145 mg of CaCO3/L and a pH of 8.1.

**Soil GSI protection criteria for the surface water human drinking water value (HDV) established in footnote X of R 299.49.

Residential DC = Generic Residential Cleanup Criteria - Direct Contact criteria established in Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Nonresidential DC = Generic Nonresidential Cleanup Criteria - Direct Contact criteria established in Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Nonresidential VSIC = Generic Nonresidential Cleanup Criteria - Infinite Source Soil Inhalation criteria established in Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Residential PSIC = Generic Residential Cleanup Criteria - Particulate Soil Inhalation criteria established in Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Nonresidential PSIC = Generic Nonresidential Cleanup Criteria - Particulate Soil Inhalation criteria established in Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Shaded cells indicate an exceedance in one or more cleanup criteria.

TDL = Target detection limit unless otherwise noted in parentheses.

C = The criterion developed under R 299.20 to R 299.26 exceeds the chemical specific Csat.

M = Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.

ID = Inadequate data available to develop criteria.

NA = Not Available.

ND = Not Detected.

NLL = Not Likely to Leach.

NLV = Not Likely to Volatilize.

mg/kg = miligrams per kilogram.

µg/kg = micrograms per kilogram.

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Table 1 (Page 2 of 4)
Results of Laboratory Analysis - Soil
City of St. Joseph
CSO Compliance Project
St. Joseph, Michigan

Project No. D5090

Parameter	Units	TDL	SDBL	Residential DWP	Nonresidential DWP	GSIP	Residential DC	Nonresidential DC	Nonresidential VSIC	Residential PSIC	Nonresidential PSIC	GP-7(3')	GP-7(3') Dup.	GP-8(8')	GP-9(6')	GP-10(5')	GP-11(9')
Date Collected												**12/26/2023**	**12/26/2023**	**12/26/2023**	**12/26/2023**	**12/26/2023**	**12/26/2023**
Mercury - Date Analyzed												**1/5/2024**	**1/5/2024**	**1/5/2024**	**1/5/2024**	**1/5/2024**	**1/5/2024**
Mercury	mg/kg	0.05	0.13	1.7	1.7	**0.050(M)**	160	580	62	20,000	8,800	ND	ND	ND	ND	ND	ND
Metals - Date Analyzed												**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**
Arsenic	mg/kg	2	**5.8**	**4.6**	**4.6**	**4.6**	**7.6**	37	NLV	720	910	**35**	**5.2**	**2.8**	ND	**2.2**	**2.6**
Barium	mg/kg	1	75	1,300	1,300	430*	37,000	130,000	NLV	330,000	150,000	**19**	**35**	**42**	**24**	**20**	**29**
Cadmium	mg/kg	0.2	1.2	6	6	3*	550	2,100	NLV	1,700	2,200	ND	ND	ND	ND	ND	ND
Chromium	mg/kg	2	**18**	**30**	**30**	2,900,000*	2,500	9,200	NLV	330,000	150,000	**45**	**9.5**	**7.0**	**4.6**	**13**	**9.8**
Copper	mg/kg	1	32	5,800	5,800	69*	20,000	73,000	NLV	130	59,000	**66**	**20**	**11**	**5.3**	**8.4**	**7.4**
Lead	mg/kg	10	21	700	700	2,500*	400	900 (DD)	NLV	100,000	44,000	ND	**58**	**54**	ND	**17**	**30**
Selenium	mg/kg	0.2	**0.41**	4	4	**0.40**	2,600	9,600	NLV	130,000	59,000	**0.58**	**1.6**	**0.86**	**0.79**	**1.1**	**1.3**
Silver	mg/kg	0.1	1	4.5	13	0.10(M)	2,500	9,000	NLV	6,700	2,900	ND (0.49)	ND (0.47)	ND (0.45)	ND (0.46)	ND (0.46)	ND (0.42)
Zinc	mg/kg	1	47	2,400	5,000	140*	170,000	630,000	NLV	ID	ID	**9.3**	**41**	**43**	**15**	**35**	**30**
VOCs - Date Analyzed												**1/4/2024**	**1/5/2024**	**1/5/2024**	**1/5/2024**	**1/5/2024**	**1/5/2024**
Cyclohexane	µg/kg	250	NA	NA	15,000,000	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
Toluene	µg/kg	100	NA	16,000	16,000	5,400	50,000,000 (C)	160,000,000 (C)	3,300,000	27,000,000,000	12,000,000,000	ND	ND	ND	ND	ND	ND
Tetrachloroethene	µg/kg	50	NA	100	100	580**	200,000 (C)	930,000	210,000	1,200,000,000	1,200,000,000	ND	ND	ND	ND	ND	ND
Chlorobenzene	µg/kg	50	NA	2,000	2,000	500	4,300,000 (C)	14,000,000	920,000	4,700,000,000	2,100,000,000.0	ND	ND	ND	ND	ND	ND
Ethylbenzene	µg/kg	50	NA	1,500	1,500	360	22,000,000 (C)	71,000,000 (C)	2,400,000	10,000,000,000	13,000,000,000	ND	ND	ND	ND	ND	ND
Xylenes, Total	µg/kg	150	NA	5,600	5,600	980	410,000,000 (C)	1,000,000,000 (C)	54,000,000	290,000,000,000	130,000,000,000	ND	ND	ND	ND	ND	ND
Isopropylbenzene	µg/kg	250	NA	91,000	260,000	3,200	25,000,000 (C)	80,000,000	2,000,000	5,800,000,000	2,600,000,000	ND	ND	ND	ND	ND	ND
n-Propylbenzene	µg/kg	100	NA	1,600	4,600	ID	2,500,000	8,000,000	ID	1,300,000,000	5,900,000,000.0	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	µg/kg	100	NA	1,800	1,800	1,100	32,000,000 (C)	100,000,000 (C)	19,000,000	82,000,000,000	36,000,000,000	ND	ND	ND	ND	ND	ND
t-Butyl Benzene	µg/kg	50	NA	1,600	4,600	ID	2,500,000	8,000,000	ID	670,000,000	290,000,000	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	µg/kg	100	NA	2,100	2,100	570	32,000,000(C)	100,000,000 (C)	25,000,000	82,000,000,000	36,000,000,000	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	µg/kg	50	NA	1,600	4,600	ID	2,500,000	8,000,000	ID	400,000,000	290,000,000	ND	ND	ND	ND	ND	ND
n-Butylbenzene	µg/kg	50	NA	1,600	4,600	ID	2,500,000	8,000,000	ID	2,000,000,000	880,000,000	ND	ND	ND	ND	ND	ND
1,2,3-Trimethylbenzene	µg/kg	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	µg/kg	330	NA	57,000	170,000	4,200	8,100,000	26,000,000	4,900,000	2,700,000	290,000,000	ND	ND	ND	ND	ND	ND
All Other VOCs	µg/kg	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	ND	ND	ND	ND	ND	ND
PNAs - Date Analyzed												**1/2/2024**	**1/2/2024**	**1/3/2024**	**1/3/2024**	**1/3/2024**	**1/3/2024**
Naphthalene	µg/kg	330	NA	35,000	100,000	730	16,000,000	52,000,000	350,000	200,000,000	88,000,000	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	µg/kg	330	NA	57,000	170,000	4,200	8,100,000	26,000,000	1,800,000	2,700,000	2,900,000,000	ND (500)	ND (460)	ND	ND	ND (460)	ND
Acenaphthene	µg/kg	330	NA	300,000	880,000	8,700	41,000,000	130,000,000	97,000,000	14,000,000,000	6,200,000,000	ND	ND	ND	ND	ND	ND
Fluorene	µg/kg	330	NA	390,000	890,000	5,300	27,000,000	87,000,000	150,000,000	580,000,000	4,100,000,000	ND	ND	ND	ND	ND	ND
Phenanthrene	µg/kg	330	NA	56,000	160,000	2,100	1,600,000	5,200,000	190,000	6,700,000	2,900,000	ND	ND	ND	ND	ND	ND
Anthracene	µg/kg	330	NA	41,000	41,000	ID	230,000,000	730,000,000	1,600,000,000	67,000,000,000	29,000,000,000	ND	ND	ND	ND	ND	ND
Fluoranthene	µg/kg	330	NA	730,000	730,000	5,500	46,000,000	130,000,000	890,000,000	9,300,000,000	4,100,000,000	ND	ND	ND	ND	ND	ND
Pyrene	µg/kg	330	NA	480,000	480,000	ID	29,000,000	84,000,000	780,000,000	1,000,000,000	2,900,000,000	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	µg/kg	330	NA	NLL	NLL	NLL	20,000	80,000	NLV	NLV	ID	ND	ND	ND	ND	ND	ND
Chrysene	µg/kg	330	NA	NLL	NLL	NLL	2,000,000	8,000,000	ID	ID	ID	**340**	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	µg/kg	330	NA	NLL	NLL	NLL	20,000	80,000	ID	ID	ID	**780**	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	µg/kg	330	NA	NLL	NLL	NLL	200,000	800,000	NLV	NLV	ID	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	µg/kg	330	NA	NLL	NLL	NLL	2,000	8,000	NLV	NLV	1,900,000	**570**	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	µg/kg	330	NA	NLL	NLL	NLL	20,000	80,000	NLV	NLV	ID	**370**	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	µg/kg	330	NA	NLL	NLL	NLL	2,000	8,000	NLV	NLV	ID	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	µg/kg	330	NA	NLL	NLL	NLL	2,500,000	7,000,000	NLV	NLV	350,000,000	ND	ND	ND	ND	ND	ND
All Other PNAs	µg/kg	330	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	ND	ND	ND	ND	ND	ND

Notes:

Samples collected by Point Blue, LLC and analyzed by Trace Analytical Laboratories, Inc. of Muskegon, Michigan.

SDBL = Statewide Default Background Levels established Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

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*Calculated GSI criterion based on the May 2021 City of St. Joseph Water Filtration Plant report documenting the receiving water body (Lake Michigan) hardness of 145 mg of CaCO3/L and a pH of 8.1.

**Soil GSI protection criteria for the surface water human drinking water value (HDV) established in footnote X of R 299.49.

Residential DC = Generic Residential Cleanup Criteria - Direct Contact criteria established in Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

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Shaded cells indicate an exceedance in one or more cleanup criteria.

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C = The criterion developed under R 299.20 to R 299.26 exceeds the chemical specific Csat.

M = Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.

ID = Inadequate data available to develop criteria.

NA = Not Available.

ND = Not Detected.

NLL = Not Likely to Leach.

NLV = Not Likely to Volatilize.

mg/kg = miligrams per kilogram.

µg/kg = micrograms per kilogram.

Table 1 (Page 3 of 4)
Results of Laboratory Analysis - Soil
City of St. Joseph
CSO Compliance Project
St. Joseph, Michigan

Project No. D5090

Parameter	Units	TDL	SDBL	Residential DWP	Nonresidential DWP	GSIP	Residential DC	Nonresidential DC	Nonresidential VSIC	Residential PSIC	Nonresidential PSIC	GP-12(6')	GP-13(3')	GP-14(3')	GP-15(3')	GP-16(3')	GP-17(4')
Date Collected												**12/26/2023**	**12/27/2023**	**12/27/2023**	**12/27/2023**	**12/27/2023**	**12/27/2023**
Mercury - Date Analyzed												**1/5/2024**	**1/5/2023**	**1/5/2024**	**1/5/2024**	**1/5/2024**	**1/5/2024**
Mercury	mg/kg	0.05	**0.13**	1.7	1.7	**0.050(M)**	160	580	62	20,000	8,800	ND	**0.070**	**0.091**	ND	**0.086**	**0.12**
Metals - Date Analyzed												**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/9/2024**
Arsenic	mg/kg	2	5.8	4.6	4.6	4.6	7.6	37	NLV	720	910	ND	**3.4**	**3.7**	ND	**4.4**	**3.8**
Barium	mg/kg	1	75	1,300	1,300	430*	37,000	130,000	NLV	330,000	150,000	ND (9.7)	**42**	**34**	**23**	**95**	**65**
Cadmium	mg/kg	0.2	1.2	6	6	3*	550	2,100	NLV	1,700	2,200	ND	**0.26**	**0.33**	ND	**ND**	**0.36**
Chromium	mg/kg	2	18	30	30	2,900,000*	2,500	9,200	NLV	330,000	150,000	**2.4**	**8.4**	**8.5**	**4.7**	**10**	**13**
Copper	mg/kg	1	32	5,800	5,800	69*	20,000	73,000	NLV	130	59,000	**2.3**	**13**	**14**	**5.6**	**14**	**21**
Lead	mg/kg	10	21	700	700	2,500*	400	900 (DD)	NLV	100,000	44,000	ND	**57**	**57**	ND	**35**	**120**
Selenium	mg/kg	0.2	**0.41**	4	4	**0.40**	2,600	9,600	NLV	130,000	59,000	ND (0.58)	**1.3**	**1.1**	ND (0.50)	**1.3**	**1.4**
Silver	mg/kg	0.1	1	4.5	13	0.10(M)	2,500	9,000	NLV	6,700	2,900	ND (0.49)	ND (0.46)	ND (0.47)	ND (0.42)	ND (0.47)	ND (0.44)
Zinc	mg/kg	1	47	2,400	5,000	140*	170,000	630,000	NLV	ID	ID	**15**	**52**	**65**	**16**	**59**	**110**
VOCs - Date Analyzed												**1/5/2024**	**1/5/2024**	**1/6/2024**	**1/6/2024**	**1/6/2024**	**1/6-1/8/2024**
Cyclohexane	µg/kg	250	NA	NA	15,000,000	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	**920**	**12,000**
Toluene	µg/kg	100	NA	16,000	16,000	5,400	50,000,000 (C)	160,000,000 (C)	3,300,000	27,000,000,000	12,000,000,000	ND	ND	ND	ND	ND	**140**
Tetrachloroethene	µg/kg	50	NA	100	100	580**	200,000 (C)	930,000	210,000	1,200,000,000	1,200,000,000	ND	ND	ND	ND	ND	ND
Chlorobenzene	µg/kg	50	NA	2,000	2,000	500	4,300,000 (C)	14,000,000	920,000	4,700,000,000	2,100,000,000.0	ND	ND	ND	ND	ND	**51**
Ethylbenzene	µg/kg	50	NA	1,500	1,500	360	22,000,000 (C)	71,000,000 (C)	2,400,000	10,000,000,000	13,000,000,000	ND	ND	ND	ND	ND	**88**
Xylenes, Total	µg/kg	150	NA	5,600	5,600	980	410,000,000 (C)	1,000,000,000 (C)	54,000,000	290,000,000,000	130,000,000,000	ND	ND	ND	ND	ND	**550**
Isopropylbenzene	µg/kg	250	NA	91,000	260,000	3,200	25,000,000 (C)	80,000,000	2,000,000	5,800,000,000	2,600,000,000	ND	ND	ND	ND	ND	**810**
n-Propylbenzene	µg/kg	100	NA	1,600	4,600	ID	2,500,000	8,000,000	ID	1,300,000,000	5,900,000,000.0	ND	ND	ND	ND	ND	**540**
1,3,5-Trimethylbenzene	µg/kg	100	NA	1,800	1,800	1,100	32,000,000 (C)	100,000,000 (C)	19,000,000	82,000,000,000	36,000,000,000	ND	ND	ND	ND	ND	**280**
t-Butyl Benzene	µg/kg	50	NA	1,600	4,600	ID	2,500,000	8,000,000	ID	670,000,000	290,000,000	ND	ND	ND	ND	ND	**68**
1,2,4-Trimethylbenzene	µg/kg	100	NA	2,100	2,100	570	32,000,000(C)	100,000,000 (C)	25,000,000	82,000,000,000	36,000,000,000	ND	ND	ND	ND	ND	**120**
sec-Butylbenzene	µg/kg	50	NA	1,600	4,600	ID	2,500,000	8,000,000	ID	400,000,000	290,000,000	ND	ND	ND	ND	**57**	**640**
n-Butylbenzene	µg/kg	50	NA	1,600	4,600	ID	2,500,000	8,000,000	ID	2,000,000,000	880,000,000	ND	ND	ND	ND	**55**	**820**
1,2,3-Trimethylbenzene	µg/kg	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	**160**
2-Methylnaphthalene	µg/kg	330	NA	57,000	170,000	4,200	8,100,000	26,000,000	4,900,000	2,700,000	290,000,000	ND	ND	ND	ND	ND	**2,500**
All Other VOCs	µg/kg	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	ND	ND	ND	ND	ND	ND
PNAs - Date Analyzed												**1/3/2024**	**1/8/2024**	**1/8/2024**	**1/9/2024**	**1/9/2024**	**1/9/2024**
Naphthalene	µg/kg	330	NA	35,000	100,000	730	16,000,000	52,000,000	350,000	200,000,000	88,000,000	ND	ND	ND (490)	ND	ND	ND (480)
2-Methylnaphthalene	µg/kg	330	NA	57,000	170,000	4,200	8,100,000	26,000,000	1,800,000	2,700,000	2,900,000,000	ND (450)	ND (480)	ND (1,200)	ND	ND	**2,000**
Acenaphthene	µg/kg	330	NA	300,000	880,000	8,700	41,000,000	130,000,000	97,000,000	14,000,000,000	6,200,000,000	ND	ND	ND (490)	ND	ND	ND (480)
Fluorene	µg/kg	330	NA	390,000	890,000	5,300	27,000,000	87,000,000	150,000,000	580,000,000	4,100,000,000	ND	ND	ND (490)	ND	ND	ND (480)
Phenanthrene	µg/kg	330	NA	56,000	160,000	2,100	1,600,000	5,200,000	190,000	6,700,000	2,900,000	ND	ND	ND	ND	ND	ND
Anthracene	µg/kg	330	NA	41,000	41,000	ID	230,000,000	730,000,000	1,600,000,000	67,000,000,000	29,000,000,000	ND	ND	ND (490)	ND	ND	ND (480)
Fluoranthene	µg/kg	330	NA	730,000	730,000	5,500	46,000,000	130,000,000	890,000,000	9,300,000,000	4,100,000,000	ND	ND	ND	ND	ND	ND
Pyrene	µg/kg	330	NA	480,000	480,000	ID	29,000,000	84,000,000	780,000,000	1,000,000,000	2,900,000,000	ND	ND	ND (490)	ND	ND	ND (480)
Benzo(a)anthracene	µg/kg	330	NA	NLL	NLL	NLL	20,000	80,000	NLV	NLV	ID	ND	ND	ND	ND	ND	ND
Chrysene	µg/kg	330	NA	NLL	NLL	NLL	2,000,000	8,000,000	ID	ID	ID	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	µg/kg	330	NA	NLL	NLL	NLL	20,000	80,000	ID	ID	ID	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	µg/kg	330	NA	NLL	NLL	NLL	200,000	800,000	NLV	NLV	ID	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	µg/kg	330	NA	NLL	NLL	NLL	2,000	8,000	NLV	NLV	1,900,000	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	µg/kg	330	NA	NLL	NLL	NLL	20,000	80,000	NLV	NLV	ID	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	µg/kg	330	NA	NLL	NLL	NLL	2,000	8,000	NLV	NLV	ID	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	µg/kg	330	NA	NLL	NLL	NLL	2,500,000	7,000,000	NLV	NLV	350,000,000	ND	ND	ND	ND	ND	ND
All Other PNAs	µg/kg	330	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	ND	ND	ND	ND	ND	ND

Notes:

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Shaded cells indicate an exceedance in one or more cleanup criteria.

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Table 1 (Page 4 of 4)
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City of St. Joseph
CSO Compliance Project
St. Joseph, Michigan

Project No. D5090

Parameter	Units	TDL	SDBL	Residential DWP	Nonresidential DWP	GSIP	Residential DC	Nonresidential DC	Nonresidential VSIC	Residential PSIC	Nonresidential PSIC	GP-18(5')	GP-19(5')	GP-20(2')	GP-20(4')	GP-20(4') Dup.	GP-21(2')	GP-22(2')
Date Collected												12/27/2023	12/27/2023	12/27/2024	12/27/2023	12/27/2023	12/27/2023	12/27/2023
Mercury - Date Analyzed												1/5/2024	1/5/2024	1/5/2024	1/5/2024	1/5/2024	1/5/2024	1/5/2024
Mercury	mg/kg	0.05	0.13	1.7	1.7	0.050(M)	160	580	62	20,000	8,800	**0.11**	ND	**0.070**	ND	ND	**0.091**	ND (0.052)
Metals - Date Analyzed												1/4/2024	1/4/2024	1/4/2024	1/4/2024	1/4/2024	1/4/2024	1/4/2024
Arsenic	mg/kg	2	**5.8**	**4.6**	**4.6**	**4.6**	**7.6**	**37**	NLV	720	910	ND	**2.0**	**5.0**	ND	ND	**5.5**	**170**
Barium	mg/kg	1	75	1,300	1,300	430*	37,000	130,000	NLV	330,000	150,000	**160**	**17**	**32**	**27**	**40**	**47**	**39**
Cadmium	mg/kg	0.2	1.2	6	6	3*	550	2,100	NLV	1,700	2,200	**0.26**	ND	ND	ND	ND	**0.24**	**0.93**
Chromium	mg/kg	2	18	30	30	2,900,000*	2,500	9,200	NLV	330,000	150,000	**18**	**5.2**	**7.5**	**6.1**	**8.8**	**9.0**	**8.2**
Copper	mg/kg	1	32	5,800	5,800	69*	20,000	73,000	NLV	130	59,000	**16**	**4.0**	**12**	**4.1**	**8.5**	**16**	**24**
Lead	mg/kg	10	21	700	700	2,500*	400	900 (DD)	NLV	100,000	44,000	**32**	ND	**28**	ND	ND	**23**	**50**
Selenium	mg/kg	0.2	**0.41**	**4**	**4**	**0.40**	2,600	9,600	NLV	130,000	59,000	**4.2**	**0.84**	**3.4**	**0.65**	**1.2**	**5.0**	**3.4**
Silver	mg/kg	0.1	1	4.5	13	0.10(M)	2,500	9,000	NLV	6,700	2,900	ND (0.49)	ND (0.47)	ND (0.47)	ND (0.45)	ND (0.45)	ND (0.43)	ND (0.45)
Zinc	mg/kg	1	**47**	2,400	5,000	**140***	170,000	630,000	NLV	ID	ID	**67**	**8.6**	**42**	**17**	**37**	**95**	**230**
VOCs - Date Analyzed												1/6/2024	1/6-1/8/2024		1/6/2024	1/6/2024	1/6/2024	1/6/2024
Cyclohexane	µg/kg	250	NA	NA	15,000,000	NA	NA	NA	NA	NA	NA	**340**	ND	NT	ND	ND	ND	ND
Toluene	µg/kg	100	NA	16,000	16,000	5,400	50,000,000 (C)	160,000,000 (C)	3,300,000	27,000,000,000	12,000,000,000	ND	ND	NT	ND	ND	ND	ND
Tetrachloroethene	µg/kg	50	NA	100	100	580**	200,000 (C)	930,000	210,000	1,200,000,000	1,200,000,000	ND	ND	NT	ND	ND	ND	ND
Chlorobenzene	µg/kg	50	NA	2,000	2,000	500	4,300,000 (C)	14,000,000	920,000	4,700,000,000	2,100,000,000.0	ND	ND	NT	ND	ND	ND	ND
Ethylbenzene	µg/kg	50	NA	1,500	1,500	360	22,000,000 (C)	71,000,000 (C)	2,400,000	10,000,000,000	13,000,000,000	ND	ND	NT	ND	ND	ND	ND
Xylenes, Total	µg/kg	150	NA	5,600	5,600	980	410,000,000 (C)	1,000,000,000 (C)	54,000,000	290,000,000,000	130,000,000,000	ND	ND	NT	ND	ND	**150**	ND
Isopropylbenzene	µg/kg	250	NA	91,000	260,000	3,200	25,000,000 (C)	80,000,000	2,000,000	5,800,000,000	2,600,000,000	ND	**510**	NT	ND	ND	ND	ND
n-Propylbenzene	µg/kg	100	NA	1,600	4,600	ID	2,500,000	8,000,000	ID	1,300,000,000	5,900,000,000.0	**110**	**1,400**	NT	**240**	**270**	ND	ND
1,3,5-Trimethylbenzene	µg/kg	100	NA	1,800	1,800	1,100	32,000,000 (C)	100,000,000 (C)	19,000,000	82,000,000,000	36,000,000,000	ND	**260**	NT	ND	ND	ND	ND
t-Butyl Benzene	µg/kg	50	NA	1,600	4,600	ID	2,500,000	8,000,000	ID	670,000,000	290,000,000	ND	**150**	NT	ND	**79**	ND	ND
1,2,4-Trimethylbenzene	µg/kg	100	NA	2,100	2,100	570	32,000,000(C)	100,000,000 (C)	25,000,000	82,000,000,000	36,000,000,000	ND	ND	NT	ND	ND	**130**	ND
sec-Butylbenzene	µg/kg	50	NA	1,600	4,600	ID	2,500,000	8,000,000	ID	400,000,000	290,000,000	**70**	**1,500**	NT	**430**	**790**	**84**	ND
n-Butylbenzene	µg/kg	50	NA	**1,600**	4,600	ID	2,500,000	8,000,000	ID	2,000,000,000	880,000,000	**70**	**3,400**	NT	**660**	**1,200**	**100**	ND
1,2,3-Trimethylbenzene	µg/kg	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	**300**	NT	**63**	**92**	**78**	ND
2-Methylnaphthalene	µg/kg	330	NA	57,000	170,000	**4,200**	8,100,000	26,000,000	4,900,000	2,700,000	290,000,000	**820**	**7,800**	NT	**4,200**	**2,500**	**810**	ND
All Other VOCs	µg/kg	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	ND	ND	NT	ND	ND	ND	ND
PNAs - Date Analyzed												1/9/2024	1/3/2024		1/4/2024	1/4/2024	1/4/2024	1/4/2024
Naphthalene	µg/kg	330	NA	35,000	100,000	730	16,000,000	52,000,000	350,000	200,000,000	88,000,000	ND	ND (1,800)	NT	ND	ND	**330**	ND
2-Methylnaphthalene	µg/kg	330	NA	57,000	170,000	**4,200**	8,100,000	26,000,000	1,800,000	2,700,000	2,900,000,000	ND	**10,000**	NT	**3,000**	**3,100**	**820**	**350**
Acenaphthene	µg/kg	330	NA	300,000	880,000	8,700	41,000,000	130,000,000	97,000,000	14,000,000,000	6,200,000,000	ND	**7,700**	NT	**680**	**690**	ND	ND
Fluorene	µg/kg	330	NA	390,000	890,000	**5,300**	27,000,000	87,000,000	150,000,000	580,000,000	4,100,000,000	ND	**13,000**	NT	**1,000**	**1,200**	ND	ND
Phenanthrene	µg/kg	330	NA	56,000	160,000	**2,100**	1,600,000	5,200,000	190,000	6,700,000	2,900,000	ND	**34,000**	NT	**1,900**	**2,300**	**600**	**540**
Anthracene	µg/kg	330	NA	41,000	41,000	ID	230,000,000	730,000,000	1,600,000,000	67,000,000,000	29,000,000,000	ND	**3,100**	NT	ND	ND	ND	ND
Fluoranthene	µg/kg	330	NA	730,000	730,000	5,500	46,000,000	130,000,000	890,000,000	9,300,000,000	4,100,000,000	ND	**1,300**	NT	ND	ND	ND	ND
Pyrene	µg/kg	330	NA	480,000	480,000	ID	29,000,000	84,000,000	780,000,000	1,000,000,000	2,900,000,000	ND	ND (1,800)	NT	ND	ND	ND	ND
Benzo(a)anthracene	µg/kg	330	NA	NLL	NLL	NLL	20,000	80,000	NLV	NLV	ID	ND	ND (730)	NT	ND	ND	ND	ND
Chrysene	µg/kg	330	NA	NLL	NLL	NLL	2,000,000	8,000,000	ID	ID	ID	ND	ND (730)	NT	ND	ND	ND	ND
Benzo(b)fluoranthene	µg/kg	330	NA	NLL	NLL	NLL	20,000	80,000	ID	ID	ID	ND	ND (730)	NT	ND	ND	ND	ND
Benzo(k)fluoranthene	µg/kg	330	NA	NLL	NLL	NLL	200,000	800,000	NLV	NLV	ID	ND	ND (730)	NT	ND	ND	ND	ND
Benzo(a)pyrene	µg/kg	330	NA	NLL	NLL	NLL	2,000	8,000	NLV	NLV	1,900,000	ND	ND (730)	NT	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	µg/kg	330	NA	NLL	NLL	NLL	20,000	80,000	NLV	NLV	ID	ND	ND (730)	NT	ND	ND	ND	ND
Dibenzo(a,h)anthracene	µg/kg	330	NA	NLL	NLL	NLL	2,000	8,000	NLV	NLV	ID	ND	ND (730)	NT	ND	ND	ND	ND
Benzo(g,h,i)perylene	µg/kg	330	NA	NLL	NLL	NLL	2,500,000	7,000,000	NLV	NLV	350,000,000	ND	ND (730)	NT	ND	ND	ND	ND
All Other PNAs	µg/kg	330	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	ND	ND	ND	ND	ND	ND	ND

Notes:

Samples collected by Point Blue, LLC and analyzed by Trace Analytical Laboratories, Inc. of Muskegon, Michigan.

SDBL = Statewide Default Background Levels established Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Residential DWP = Generic Residential Cleanup Criteria - Drinking Water Protection criteria established in Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Nonresidential DWP = Generic Nonresidential Cleanup Criteria - Drinking Water Protection criteria established in Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

GSIP = Groundwater Surface Water Interface Protection criteria established in Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

*Calculated GSI criterion based on the May 2021 City of St. Joseph Water Filtration Plant report documenting the receiving water body (Lake Michigan) hardness of 145 mg of CaCO3/L and a pH of 8.1.

**Soil GSI protection criteria for the surface water human drinking water value (HDV) established in footnote X of R 299.49.

Residential DC = Generic Residential Cleanup Criteria - Direct Contact criteria established in Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Nonresidential DC = Generic Nonresidential Cleanup Criteria - Direct Contact criteria established in Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Nonresidential VSIC = Generic Nonresidential Cleanup Criteria - Infinite Source Soil Inhalation criteria established in Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Residential PSIC = Generic Residential Cleanup Criteria - Particulate Soil Inhalation criteria established in Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Nonresidential PSIC = Generic Nonresidential Cleanup Criteria - Particulate Soil Inhalation criteria established in Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Shaded cells indicate an exceedance in one or more cleanup criteria.

TDL = Target detection limit unless otherwise noted in parentheses.

C = The criterion developed under R 299.20 to R 299.26 exceeds the chemical specific Csat.

M = Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.

ID = Inadequate data available to develop criteria.

NA = Not Available.

ND = Not Detected.

NLL = Not Likely to Leach.

NLV = Not Likely to Volatilize.

mg/kg = miligrams per kilogram.

µg/kg = micrograms per kilogram.

Table 2 (Page 1 of 3)
Results of Laboratory Analysis - Groundwater
City of St. Joseph
CSO Compliance Project
St. Joseph, Michigan

Point Blue No. D5090

Parameter	Units	TDL	Residential DW	Nonresidential DW	GSI	GP-2	GP-4	GP-6	GP-9	GP-11	GP-12	GP-12 Duplicate
Date Collected						**12/26/2023**	**12/26/23**	**12/26/2023**	**12/26/2023**	**12/26/2023**	**12/27/2024**	**12/26/2023**
Mercury - Date Analyzed						**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**
Mercury	mg/L	0.000001	0.002 (A)	0.002 (A)	0.0000013	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0002)
Metals - Date Analyzed						**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**
Arsenic	mg/L	0.005	0.01 (A)	0.01 (A)	0.01	ND	**0.0070**	ND	ND	**0.0064**	ND	ND
Barium	mg/L	0.1	2 (A)	2 (A)	0.650*	ND	**0.35**	**0.14**	ND	**0.33**	**0.19**	**0.20**
Cadmium	mg/L	0.001	0.005 (A)	0.05 (A)	0.0025*	ND	ND	ND	ND	ND	ND	ND
Chromium	mg/L	0.01	0.1 (A)	0.1 (A)	0.120*	ND	**0.037**	ND	ND	**0.027**	ND	ND
Copper	mg/L	0.004	1 (E)	1 (E)	**0.012***	ND	**0.025**	ND	ND	**0.022**	ND	ND
Lead	mg/L	0.003	**0.004 (L)**	**0.004 (L)**	**0.014***	ND	**0.017**	ND	**0.0032**	**0.033**	ND	ND
Selenium	mg/L	0.005	0.05 (A)	0.05 (A)	**0.005**	ND	**0.0071**	ND	ND	ND	ND	ND
Silver	mg/L	0.0002	0.098	0.098	0.0002 (M)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Zinc	mg/L	0.05	5 (E)	5 (E)	0.160*	ND	**0.071**	ND	ND	**0.067**	ND	ND
VOCs - Date Analyzed						**1/3/2024**	**1/3/2024**	**1/3/2024**	**1/3/2024**	**1/3/2024**	**1/4/2024**	**1/3/2024**
Methylene Chloride	µg/L	5	5.0 (A)	5.0 (A)	47**	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	µg/L	1	70 (A)	70 (A)	620	**2.0**	ND	ND	ND	ND	ND	ND
Benzene	µg/L	1	5.0 (A)	5.0 (A)	12**	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	µg/L	10	NA	94,000	NA	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	µg/L	1	5.0 (A)	5.0 (A)	29**	**1.6**	ND	ND	ND	ND	ND	ND
Toluene	µg/L	1	790 (E)	790 (E)	270	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	µg/L	1	**5.0 (A)**	**5.0 (A)**	11**	**5.6**	ND	ND	ND	ND	ND	ND
Ethylbenzene	µg/L	1	74 (E)	74 (E)	18	ND	ND	ND	ND	ND	ND	ND
Xylene (total)	µg/L	3	280 (E)	280 (E)	49	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	µg/L	5	2,300	2,300	28	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	µg/L	1	230	230	ID	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	µg/L	1	72 (E)	72 (E)	45	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	µg/L	1	230	230	ID	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	µg/L	1	230	230	ID	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trimethylbenzene	µg/L	5	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	µg/L	5	750	750	19	ND	ND	ND	ND	ND	ND	ND
All Other VOCs	µg/L	Varies	Varies	Varies	Varies	ND	ND	ND	ND	ND	ND	ND
PNAs - Date Analyzed						**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	**1/4/2024**	
2-Methylnaphthalene	µg/L	5	750	750	19	ND	ND	ND	ND	ND	ND	NT
Acenaphthene	µg/L	5	3,800	3,800	38	ND	ND	ND	ND	ND	ND	NT
Fluorene	µg/L	5	2,000	2,000	12	ND	ND	ND	ND	ND	ND	NT
Phenanthrene	µg/L	2	150	150	2.0 (M); 1.7	ND	ND	ND	ND	ND	ND	NT
Fluoranthene	µg/L	1	210 (S)	210 (S)	1.6	ND	ND	ND	ND	ND	ND	NT
Benzo(a)anthracene	µg/L	1	8.5	8.5	ID	ND	ND	ND	ND	ND	ND	NT
Chrysene	µg/L	1	1.6 (S)	1.6 (S)	ID	ND	ND	ND	ND	ND	ND	NT
Benzo(b)fluoranthene	µg/L	1	1.5 (S,AA)	1.5 (S,AA)	ID	ND	ND	ND	ND	ND	ND	NT
Benzo(a)pyrene	µg/L	0.2	5.0 (A)	5.0 (A)	ID	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NT
Benzo(g,h,i)perylene	µg/L	1	1.0 (M); 0.26 (S)	1.0 (M); 0.26 (S)	ID	ND	ND	ND	ND	ND	ND	NT
All Other PNAs	µg/L	Varies	Varies	Varies	Varies	ND	ND	ND	ND	ND	ND	NT

Notes:

Samples collected by Point Blue, LLC and analyzed by Trace Analytical Laboratories, Inc. of Muskegon, Michigan.

TDL = Target detection limit unless otherwise noted in parenthesis.

Residential DW = Drinking Water criteria established in Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Nonresidential DW = Drinking Water criteria established in Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

GSI = Groundwater Surface Water Interface Protection criteria established in Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

*Calculated GSI criterion based on the May 2021 City of St. Joseph Water Filtration Plant report documenting the receiving water body (Lake Michigan) hardness of 145 mg of CaCO3/L and a pH of 8.1.

**Surface Water GSI protection criteria for the surface water human drinking water value (HDV) established in footnote X of R 299.49.

Shaded cells indicate an exceedance in one or more cleanup criteria.

A = Criterion is the State of Michigan drinking water standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005.

E = Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).

M = Calculated criterion is below the method detection limit, therefore, the criterion defaults to the method detection limit.

S = Criterion defaults to the hazardous substance-specific water solubility limit.

AA - Use 10,000 µg/L where groundwater enters a structure through the use of a water well, sump or other device. Use 28,000 µg/L for all other uses.

ID = Inadequate data available to develop criteria.

ND = Not Detected.

NT = Not Tested.

NA = Not Available.

mg/L = milligrams per liter.

µg/L = micrograms per liter.

Table 2 (Page 2 of 3)
Results of Laboratory Analysis - Groundwater
City of St. Joseph
CSO Compliance Project
St. Joseph, Michigan

Point Blue No. D5090

Parameter	Units	TDL	Residential DW	Nonresidential DW	GSI	GP-13	GP-14	GP-15	GP-17	GP-18	GP-19	GP-19 Duplicate
Date Collected						12/27/2023	12/27/2023	12/27/2023	12/27/2023	12/27/2023	12/27/2023	12/27/2023
Mercury - Date Analyzed						1/4/2024	1/4/2024	1/4/2024	1/4/2024	1/4/2024	1/4/2024	1/4/2024
Mercury	mg/L	0.000001	0.002 (A)	0.002 (A)	**0.0000013**	ND (0.0002)	**0.00036**	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0002)
Metals - Date Analyzed						1/4/2024	1/4/2024	1/4/2024	1/4/2024	1/4/2024	1/4/2024	1/4/2024
Arsenic	mg/L	0.005	**0.01 (A)**	**0.01 (A)**	**0.01**	**0.0093**	**0.019**	**0.0070**	ND	ND	ND	ND
Barium	mg/L	0.1	2 (A)	2 (A)	**0.650***	**0.35**	**0.75**	**0.18**	**0.27**	**0.16**	ND	ND
Cadmium	mg/L	0.001	0.005 (A)	0.05 (A)	0.0025*	ND (0.005)	ND (0.005)	ND	ND	ND	ND	ND
Chromium	mg/L	0.01	0.1 (A)	0.1 (A)	0.120*	ND	**0.086**	ND	ND	ND	ND	ND
Copper	mg/L	0.004	1 (E)	1 (E)	**0.012***	ND (0.020)	**0.11**	ND	**0.0065**	**0.0073**	ND	**0.0043**
Lead	mg/L	0.003	**0.004 (L)**	**0.004 (L)**	**0.014***	ND (0.010)	**0.24**	**0.0031**	**0.023**	**0.11**	**0.0031**	ND
Selenium	mg/L	0.005	0.05 (A)	0.05 (A)	**0.005**	ND (0.010)	**0.028**	ND	ND	ND	ND	ND
Silver	mg/L	0.0002	0.098	0.098	**0.0002 (M)**	ND (0.005)	ND (0.0050)	**0.0095**	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Zinc	mg/L	0.05	5 (E)	5 (E)	**0.160***	ND (0.15)	**0.56**	ND	ND	ND	ND	ND
VOCs - Date Analyzed						1/3/2024	1/3/2024	1/3/2024	1/8/2024	1/8/2024	1/8/2024	1/8/2024
Methylene Chloride	µg/L	5	**5.0 (A)**	**5.0 (A)**	47**	ND	ND	ND	ND	**5.7**	ND	**10**
cis-1,2-Dichloroethene	µg/L	1	70 (A)	70 (A)	620	ND	ND	**8.2**	ND	ND	ND	ND
Benzene	µg/L	1	**5.0 (A)**	**5.0 (A)**	**12****	ND	ND	ND	**40**	ND	ND	ND
Cyclohexane	µg/L	10	NA	94,000	NA	ND	ND	**10**	**170**	**28**	**35**	**38**
Trichloroethene	µg/L	1	**5.0 (A)**	**5.0 (A)**	29**	ND	ND	**5.4**	ND	ND	ND	ND
Toluene	µg/L	1	790 (E)	790 (E)	270	ND	ND	ND	**6.7**	**1.9**	**1.0**	**1.6**
Tetrachloroethene	µg/L	1	5.0 (A)	5.0 (A)	11**	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	µg/L	1	74 (E)	74 (E)	18	ND	ND	ND	**3.0**	ND	ND	ND
Xylene (total)	µg/L	3	280 (E)	280 (E)	49	ND	ND	ND	**7.6**	ND	ND	**3.3**
Isopropylbenzene	µg/L	5	2,300	2,300	28	ND	ND	ND	**11**	ND	**14**	**15**
n-Propylbenzene	µg/L	1	230	230	ID	ND	ND	ND	**17**	**2.4**	**25**	**27**
1,3,5-Trimethylbenzene	µg/L	1	72 (E)	72 (E)	45	ND	ND	ND	ND	ND	**6.4**	**7.3**
sec-Butylbenzene	µg/L	1	230	230	ID	ND	ND	**1.7**	**2.4**	**1.5**	**6.4**	**6.4**
n-Butylbenzene	µg/L	1	230	230	ID	ND	ND	**2.0**	**3.2**	**1.1**	**10**	**10**
1,2,3-Trimethylbenzene	µg/L	5	NA	NA	NA	ND	ND	ND	**3.1**	ND	**4.6**	**5.2**
2-Methylnaphthalene	µg/L	5	750	750	**19**	ND	ND	ND	**14**	ND	**280**	**300**
All Other VOCs	µg/L	Varies	Varies	Varies	Varies	ND	ND	ND	ND	**10**	ND	ND
PNAs - Date Analyzed						1/4/2024	1/4/2024	1/4/2024	1/4-1/5/2024	1/4/2024	1/4-1/5/2024	1/4-1/5/2024
2-Methylnaphthalene	µg/L	5	750	750	**19**	ND	ND	ND	**14**	ND	**200**	**210**
Acenaphthene	µg/L	5	3,800	3,800	38	ND	ND	ND	ND	ND	**12**	**13**
Fluorene	µg/L	5	2,000	2,000	**12**	ND	ND	ND	ND	ND	ND (32)	**17**
Phenanthrene	µg/L	2	150	150	**2.0 (M); 1.7**	**5.4**	**2.0**	ND	ND	ND	**38**	**37**
Fluoranthene	µg/L	1	210 (S)	210 (S)	**1.6**	ND	**3.4**	ND	ND	ND	ND (1.6)	ND (1.7)
Benzo(a)anthracene	µg/L	1	8.5	8.5	ID	ND	**2.1**	ND	ND	ND	ND (1.6)	ND (1.7)
Chrysene	µg/L	1	**1.6 (S)**	**1.6 (S)**	ID	ND	**2.0**	ND	ND	ND	ND (1.6)	ND (1.7)
Benzo(b)fluoranthene	µg/L	1	**1.5 (S,AA)**	**1.5 (S,AA)**	ID	ND	**2.0**	ND	ND	ND	ND (1.6)	ND (1.7)
Benzo(a)pyrene	µg/L	0.2	5.0 (A)	5.0 (A)	ID	ND (1.0)	**1.5**	ND (1.0)	ND	ND	ND (1.6)	ND (1.7)
Benzo(g,h,i)perylene	µg/L	1	**1.0 (M); 0.26 (S)**	**1.0 (M); 0.26 (S)**	ID	ND	**1.1**	ND	ND	ND	ND (1.6)	ND (1.7)
All Other PNAs	µg/L	Varies	Varies	Varies	Varies	ND	ND	ND	ND	ND	ND	ND

Notes:

Samples collected by Point Blue, LLC and analyzed by Trace Analytical Laboratories, Inc. of Muskegon, Michigan.

TDL = Target detection limit unless otherwise noted in parenthesis.

Residential DW = Drinking Water criteria established in Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Nonresidential DW = Drinking Water criteria established in Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

GSI = Groundwater Surface Water Interface Protection criteria established in Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

*Calculated GSI criterion based on the May 2021 City of St. Joseph Water Filtration Plant report documenting the receiving water body (Lake Michigan) hardness of 145 mg of CaCO3/L and a pH of 8.1.

**Surface Water GSI protection criteria for the surface water human drinking water value (HDV) established in footnote X of R 299.49.

Shaded cells indicate an exceedance in one or more cleanup criteria.

A = Criterion is the State of Michigan drinking water standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005.

E = Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).

M = Calculated criterion is below the method detection limit, therefore, the criterion defaults to the method detection limit.

S = Criterion defaults to the hazardous substance-specific water solubility limit.

AA - Use 10,000 µg/L where groundwater enters a structure through the use of a water well, sump or other device. Use 28,000 µg/L for all other uses.

ID = Inadequate data available to develop criteria.

ND = Not Detected.

NT = Not Tested.

NA = Not Available.

mg/L = milligrams per liter.

µg/L = micrograms per liter.

Table 2 (Page 3 of 3)
Results of Laboratory Analysis - Groundwater
City of St. Joseph
CSO Compliance Project
St. Joseph, Michigan

Point Blue No. D5090

Parameter	Units	TDL	Residential DW	Nonresidential DW	GSI	GP-21	GP-22	Trip Blank	Field Blank	Trip Blank	Field Blank
Date Collected						**12/27/2023**	**12/27/2023**	**12/26/2023**	**12/26/2023**	**12/27/2023**	**12/27/2023**
Mercury - Date Analyzed						**1/4/2024**	**1/4/2024**				
Mercury	mg/L	0.000001	0.002 (A)	0.002 (A)	0.0000013	ND (0.0002)	ND (0.0002)	NT	NT	NT	NT
Metals - Date Analyzed						**1/4/2024**	**1/4/2024**				
Arsenic	mg/L	0.005	**0.01 (A)**	**0.01 (A)**	**0.01**	ND	**0.071**	NT	NT	NT	NT
Barium	mg/L	0.1	2 (A)	2 (A)	0.650*	ND	ND	NT	NT	NT	NT
Cadmium	mg/L	0.001	0.005 (A)	0.05 (A)	0.0025*	ND	ND	NT	NT	NT	NT
Chromium	mg/L	0.01	0.1 (A)	0.1 (A)	0.120*	ND	ND	NT	NT	NT	NT
Copper	mg/L	0.004	1 (E)	1 (E)	0.012*	ND	ND	NT	NT	NT	NT
Lead	mg/L	0.003	0.004 (L)	0.004 (L)	0.014*	ND	ND	NT	NT	NT	NT
Selenium	mg/L	0.005	0.05 (A)	0.05 (A)	0.005	ND	ND	NT	NT	NT	NT
Silver	mg/L	0.0002	0.098	0.098	0.0002 (M)	ND (0.001)	ND (0.001)	NT	NT	NT	NT
Zinc	mg/L	0.05	5 (E)	5 (E)	0.160*	ND	ND	NT	NT	NT	NT
VOCs - Date Analyzed						**1/3/2024**	**1/3/2024**	**1/5/2024**	**1/4/2024**	**1/5/2024**	**1/5/2024**
Methylene Chloride	µg/L	5	5.0 (A)	5.0 (A)	47**	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	µg/L	1	70 (A)	70 (A)	620	ND	ND	ND	ND	ND	ND
Benzene	µg/L	1	5.0 (A)	5.0 (A)	12**	ND	ND	ND	ND	ND	ND
Cyclohexane	µg/L	10	NA	94,000	NA	ND	ND	ND	ND	ND	ND
Trichloroethene	µg/L	1	5.0 (A)	5.0 (A)	29**	ND	ND	ND	ND	ND	ND
Toluene	µg/L	1	790 (E)	790 (E)	270	ND	ND	ND	ND	ND	ND
Tetrachloroethene	µg/L	1	5.0 (A)	5.0 (A)	11**	ND	ND	ND	ND	ND	ND
Ethylbenzene	µg/L	1	74 (E)	74 (E)	18	ND	ND	ND	ND	ND	ND
Xylene (total)	µg/L	3	280 (E)	280 (E)	49	ND	ND	ND	ND	ND	ND
Isopropylbenzene	µg/L	5	2,300	2,300	28	ND	ND	ND	ND	ND	ND
n-Propylbenzene	µg/L	1	230	230	ID	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	µg/L	1	72 (E)	72 (E)	45	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	µg/L	1	230	230	ID	ND	ND	ND	ND	ND	ND
n-Butylbenzene	µg/L	1	230	230	ID	ND	ND	ND	ND	ND	ND
1,2,3-Trimethylbenzene	µg/L	5	NA	NA	NA	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	µg/L	5	750	750	19	ND	ND	ND	ND	ND	ND
All Other VOCs	µg/L	Varies	Varies	Varies	Varies	ND	ND	ND	ND	ND	ND
PNAs - Date Analyzed						**1/4/2024**	**1/4/2024**				
2-Methylnaphthalene	µg/L	5	750	750	19	ND	ND	NT	NT	NT	NT
Acenaphthene	µg/L	5	3,800	3,800	38	ND	ND	NT	NT	NT	NT
Fluorene	µg/L	5	2,000	2,000	12	ND	ND	NT	NT	NT	NT
Phenanthrene	µg/L	2	150	150	2.0 (M); 1.7	ND	ND	NT	NT	NT	NT
Fluoranthene	µg/L	1	210 (S)	210 (S)	1.6	ND	ND	NT	NT	NT	NT
Benzo(a)anthracene	µg/L	1	8.5	8.5	ID	ND	ND	NT	NT	NT	NT
Chrysene	µg/L	1	1.6 (S)	1.6 (S)	ID	ND	ND	NT	NT	NT	NT
Benzo(b)fluoranthene	µg/L	1	1.5 (S,AA)	1.5 (S,AA)	ID	ND	ND	NT	NT	NT	NT
Benzo(a)pyrene	µg/L	0.2	5.0 (A)	5.0 (A)	ID	ND	ND	NT	NT	NT	NT
Benzo(g,h,i)perylene	µg/L	1	1.0 (M); 0.26 (S)	1.0 (M); 0.26 (S)	ID	ND	ND	NT	NT	NT	NT
All Other PNAs	µg/L	Varies	Varies	Varies	Varies	ND	ND	NT	NT	NT	NT

Notes:

Samples collected by Point Blue, LLC and analyzed by Trace Analytical Laboratories, Inc. of Muskegon, Michigan.

TDL = Target detection limit unless otherwise noted in parenthesis.

Residential DW = Drinking Water criteria established in Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Nonresidential DW = Drinking Water criteria established in Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

GSI = Groundwater Surface Water Interface Protection criteria established in Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

*Calculated GSI criterion based on the May 2021 City of St. Joseph Water Filtration Plant report documenting the receiving water body (Lake Michigan) hardness of 145 mg of CaCO3/L and a pH of 8.1.

**Surface Water GSI protection criteria for the surface water human drinking water value (HDV) established in footnote X of R 299.49.

Shaded cells indicate an exceedance in one or more cleanup criteria.

A = Criterion is the State of Michigan drinking water standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005.

E = Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).

M = Calculated criterion is below the method detection limit, therefore, the criterion defaults to the method detection limit.

S = Criterion defaults to the hazardous substance-specific water solubility limit.

AA - Use 10,000 µg/L where groundwater enters a structure through the use of a water well, sump or other device. Use 28,000 µg/L for all other uses.

ID = Inadequate data available to develop criteria.

ND = Not Detected.

NT = Not Tested.

NA = Not Available.

mg/L = milligrams per liter.

µg/L = micrograms per liter.

Table 3
Results of Laboratory Analysis - Groundwater
City of St. Joseph
CSO Compliance Project
St. Joseph, Michigan

Project No. D5090

Parameter	Units	TDL	Residential DW	Nonresidential DW	GSI	GP-12	GP-17
Date Collected						**12/27/2023**	**12/27/2023**
Mercury EPA 7470A - Date Analyzed						**1/3/2024**	**1/4/2024**
Mercury	mg/L	0.000001	0.002 (A)	0.002 (A)	0.0000013	ND (0.002)	ND (0.002)
Mercury EPA 1631E - Date Analyzed						**1/3/2024**	**1/3/2024**
Mercury	ng/L	0.5	2,000 (A)	2,000 (A)	**1.3**	ND	**50**
Phenolics - Date Analyzed						**1/5/2024**	**1/5/2024**
Phenolics	mg/L	0.010	NA	NA	NA	ND	ND
Oil and Grease (HEM) - Date Analyzed						**1/4/2024**	**1/4/2024**
Oil and Grease (HEM)	mg/L	5	NA	NA	NA	ND	ND
Polychlorinated Biphenyls - Date Analyzed						**1/8/2024**	**1/8/2024**
All PCBs	µg/L	0.1	0.5 (A)	0.5 (A)	0.2 (M)	ND	ND
Pesticides - Date Analyzed						**1/2/2024**	**1/2/2024**
All Pesticides	µg/L	Varies	Varies	Varies	Varies	ND	ND
PNAs - Date Analyzed						**1/4/2024**	**1/4-1/5/2024**
PFAs/PFOs - Date Analyzed						**1/11/2024**	**1/11/2024**
PFBA	ng/L	3.0	NA	NA	NA	ND	**4.3**
PFPeA	ng/L	1.5	NA	NA	NA	ND	**1.6**
PFHxA	ng/L	0.75	400,000 (A)	400,000 (A)	NA	ND	**1.2**
PFOA	ng/L	0.75	8 (A)	8 (A)	66	ND	**0.77**
PFBS	ng/L	0.75	420 (A)	420 (A)	8,300	**0.75**	**3.0**
PFOS	ng/L	0.75	16 (A)	16 (A)	11	ND	**0.76**
All Other PFAs/PFOs	ng/L	Varies	Varies	Varies	Varies	ND	ND

Notes:

Samples collected by Point Blue, LLC and analyzed by Trace Analytical Laboratory, Inc. of Muskegon, Michigan.

TDL = Target detection limit unless otherwise noted in parenthesis.

Residential DW = Residential Drinking Water criteria established in Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Nonresidential DW = Nonresidential Water criteria established in Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

GSI = Groundwater Surface Water Interface Protection criteria established in Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Shaded cells indicate an exceedance in one or more cleanup criteria.

A = Criterion is the State of Michigan drinking water standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005.

E = Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).

M = Calculated criterion is below the method detection limit, therefore, the criterion defaults to the method detection limit.

*Calculated GSI criterion based on the May 2021 City of St. Joseph Water Filtration Plant report documenting the receiving water body (Lake Michigan) hardness of 145 mg of CaCO3/L and a pH of 8.1.

ID = Inadequate data available to develop criteria.
ND = Not Detected.
NT = Not Tested.
NA = Not Available.
mg/L = milligrams per liter.
µg/L = micrograms per liter.
ng/L = nanograms per liter.

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Table 4
Results of Laboratory Analysis - Waste Characterization Soil
City of St. Joseph
CSO Compliance Project
St. Joseph, Michigan

Point Blue No. D5090

Parameter	Units	TDL	DWP	GSIP	DC	Comp-1(S)	Comp-2(S)
Date Collected						**12/26/2023**	**12/27/2023**
VOCs - Date Analyzed						**1/6/2024**	**1/6/2024**
sec-Butylbenzene	µg/kg	50	1,600	ID	2,500,000	ND	**64**
n-Butylbenzene	µg/kg	50	1,600	ID	2,500,000	ND	**100**
Naphthalene	µg/kg	330	35,000	730	16,000,000	**650**	ND
2-Methylnaphthalene	µg/kg	330	57,000	4,200	8,100,000	**490**	**1,300**
All Other VOCs	µg/kg	Varies	Varies	Varies	Varies	ND	ND
PNAs - Date Analyzed						**1/4/2024**	**1/4/2024**
Phenanthrene	µg/kg	330	56,000	2,100	1,600,000	**1,000**	**990**
Fluoranthene	µg/kg	330	730,000	5,500	46,000,000	**850**	ND (770)
All Other PNAs	µg/kg	Varies	Varies	Varies	Varies	ND	ND
Flashpoint - Date Analyzed						**1/10/2024**	**1/10/2024**
Flashpoint	°F	1.00	NA	NA	NA	>200	>200
Corrosivity - Date Analyzed						**1/2/2024**	**1/2/2024**
Corrosivity	pH	NA	NA	NA	NA	8.51	8.47
Cyanide, Sulfide - Date Analyzed						**1/3/2024**	**1/3/2024**
Cyanide, Reactive	mg/Kg	0.50	4,000	100	12,000	ND	ND
Sulfide, Reactive	mg/Kg	5.0	NA	NA	NA	ND	ND

Notes:

Samples collected by Point Blue, LLC and analyzed by Trace Analytical Laboratories, Inc. of Muskegon, Michigan.

SDBL = Statewide Default Background Levels established Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

DWP = Generic Residential Cleanup Criteria - Drinking Water Protection criteria established in Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

GSIP = Generic Residential Cleanup Criteria - Groundwater Surface Water Interface Protection criteria established in Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

DC = Generic Residential Cleanup Criteria - Direct Contact criteria established in Table 2. Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

Shaded cells indicate an exceedance in one or more cleanup criteria.

* = Soil GSI protection criteria based on the human drinking water value.

TDL = Target detection limit unless otherwise noted in parentheses.

C = The criterion developed under R 299.20 to R 299.26 exceeds the chemical specific Csat.

NA = Not Available.

ND = Not Detected.

NLL = Not Likely to Leach.

µg/kg = micrograms per kilogram.

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Table 5
Results of Laboratory Analysis - TCLP Soil
City of St. Joseph
CSO Compliance Project
St. Joseph, Michigan

Point Blue No. D5090

Parameter	Units	TDL	DW	GSI	MCC	Comp-1(S)	Comp-2(S)
Date Collected						**12/26/2023**	**12/27/2023**
Mercury - Date Analyzed						**1/4/2024**	**1/4/2024**
Mercury	mg/L	0.000001	0.002	0.0000013	0.2	ND	ND
Metals - Date Analyzed						**1/4/2024**	**1/4/2024**
Arsenic	mg/L	0.005	0.01 (A)	0.01	5.0	ND	ND
Barium	mg/L	0.1	2 (A)	0.650*	100.0	ND	ND
Cadmium	mg/L	0.01	0.005 (A)	0.0025*	1.0	ND	ND
Chromium	mg/L	2	0.1 (A)	0.120*	5.0	ND	ND
Copper	mg/L	1	1 (E)	0.012*	NA	ND	ND
Lead	mg/L	10	0.004	0.014*	5.0	ND	ND
Selenium	mg/L	0.2	0.05 (A)	0.005	1.0	ND	ND
Silver	mg/L	0.1	0.098	0.0002 (M)	5.0	ND	ND
Zinc	mg/L	1	5 (E)	0.160*	NA	ND	ND

Notes:

Samples collected by Point Blue, LLC and analyzed by Trace Analytical Laboratory, Inc. of Muskegon, Michigan.

Residential DW = Residential Drinking Water criteria established in Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

GSI = Groundwater Surface Water Interface Protection criteria established in Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels.

MCC = Maximum Concentration of Contaminants for the Toxicity Charateristic established in Table 1, 40 CFR 261.24.

Shaded cells indicate an exceedance in one or more cleanup criteria.

A = Criterion is the State of Michigan drinking water standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005.

M = Calculated criterion is below the method detection limit, therefore, the criterion defaults to the method detection limit.

*Calculated GSI criterion based on the May 2021 City of St. Joseph Water Filtration Plant report documenting the receiving water body (Lake Michigan) hardness of 145 mg of CaCO3/L and a pH of 8.1.

ND = Not Detected.

mg/L = milligrams per liter.

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Appendix E

Laboratory Data

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

TRACE
ANALYTICAL LABORATORIES, INC.

231-773-5998 Phone
888-979-4469 Fax
www.trace-labs.com

January 10, 2024

Mr. Mark Seaman
Point Blue, LLC
2600 S. Cleveland Ave.
St. Joseph, MI 49085

RE: Trace Project 23L1358
Client Project 1160 Broad St. St. Jospeh MI

Dear Mr. Seaman:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

For clients that require NELAP Accreditation, Trace certifies that these test results meet all requirements of the NELAP Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAP at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at jmink@trace-labs.com.

Sincerely,

Jon Mink
Senior Project Manager
Enclosures

PJLA Testing
Accreditation# 1031

TNI EL V1:2016

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

231-773-5998 Phone
888-979-4469 Fax
www.trace-labs.com

SAMPLE SUMMARY

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
23L1358-01	GP-1 (4')	Solid	MAT	12/26/23 09:15	12/29/23 09:45
23L1358-02	GP-2 (3')	Solid	MAT	12/26/23 09:45	12/29/23 09:45
23L1358-03	GP-3 (2.5')	Solid	MAT	12/26/23 10:15	12/29/23 09:45
23L1358-04	GP-4 (3')	Solid	MAT	12/26/23 11:15	12/29/23 09:45
23L1358-05	GP-5 (3')	Solid	MAT	12/26/23 11:40	12/29/23 09:45
23L1358-06	GP-6 (3')	Solid	MAT	12/26/23 13:00	12/29/23 09:45
23L1358-07	GP-7 (3')	Solid	MAT	12/26/23 13:41	12/29/23 09:45
23L1358-08	GP-7 (3') Dup.	Solid	MAT	12/26/23 13:41	12/29/23 09:45
23L1358-09	GP-8 (8')	Solid	MAT	12/26/23 14:26	12/29/23 09:45
23L1358-10	GP-9 (6') Dup.	Solid	MAT	12/26/23 15:00	12/29/23 09:45
23L1358-11	GP-10 (5')	Solid	MAT	12/26/23 15:30	12/29/23 09:45
23L1358-12	GP-11 (9')	Solid	MAT	12/26/23 16:04	12/29/23 09:45
23L1358-13	GP-12 (6')	Solid	MAT	12/26/23 16:40	12/29/23 09:45
23L1358-14	GP-13 (3')	Solid	MAT	12/27/23 08:30	12/29/23 09:45
23L1358-15	GP-14 (3')	Solid	MAT	12/27/23 09:00	12/29/23 09:45
23L1358-16	GP-15 (3')	Solid	MAT	12/27/23 09:45	12/29/23 09:45
23L1358-17	GP-16 (3')	Solid	MAT	12/27/23 10:20	12/29/23 09:45
23L1358-18	GP-17 (4')	Solid	MAT	12/27/23 11:00	12/29/23 09:45
23L1358-19	GP-18 (5')	Solid	MAT	12/27/23 11:30	12/29/23 09:45
23L1358-20	GP-19 (5')	Solid	MAT	12/27/23 13:30	12/29/23 09:45
23L1358-21	GP-20 (4')	Solid	MAT	12/27/23 13:50	12/29/23 09:45
23L1358-22	GP-20 (4') Dup.	Solid	MAT	12/27/23 13:50	12/29/23 09:45
23L1358-23	GP-20 (2')	Solid	MAT	12/27/23 13:45	12/29/23 09:45
23L1358-24	GP-21 (2')	Solid	MAT	12/27/23 15:00	12/29/23 09:45
23L1358-25	GP-22 (2')	Solid	MAT	12/27/23 14:20	12/29/23 09:45
23L1358-26	Comp-1 (S)	Solid	MAT	12/26/23 16:50	12/29/23 09:45
23L1358-27	Comp-2 (S)	Solid	MAT	12/27/23 14:30	12/29/23 09:45

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

231-773-5998 Phone
888-979-4469 Fax
www.trace-labs.com

ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-01 Matrix: Solid Date Collected: 12/26/23 09:15
Sample ID: GP-1 (4') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	**4.7**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**	**229**	
Barium	**60**	**mg/kg dry**	**9.3**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**	**229**	
Cadmium	**0.27**	**mg/kg dry**	**0.20**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Chromium	**5.3**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**13**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**	**204**	
Lead	**74**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**	**203**	
Selenium	**1.7**	**mg/kg dry**	**0.56**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**	**204**	
Silver	<0.46	mg/kg dry	0.46	10	01/03/24	fs	01/04/24	acs		
Zinc	**57**	**mg/kg dry**	**4.6**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**	**229**	
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										219, 407
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	**940**	**ug/kg dry**	**450**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
2-Methylnaphthalene	<1100	ug/kg dry	1100	5	01/02/24	kbc	01/02/24	avl		
Acenaphthylene	<450	ug/kg dry	450	5	01/02/24	kbc	01/02/24	avl		
Acenaphthene	**700**	**ug/kg dry**	**450**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Fluorene	**570**	**ug/kg dry**	**450**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Phenanthrene	**4500**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Anthracene	**850**	**ug/kg dry**	**450**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Fluoranthene	**4800**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Pyrene	**3800**	**ug/kg dry**	**450**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Benzo (a) anthracene	**2000**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Chrysene	**1900**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Benzo (b) fluoranthene	**2300**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Benzo (k) fluoranthene	**940**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		

CERTIFICATE OF ANALYSIS

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

231-773-5998 Phone
888-979-4469 Fax
www.trace-labs.com

ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-01 Matrix: Solid Date Collected: 12/26/23 09:15
Sample ID: GP-1 (4') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									219, 407	
Benzo (a) pyrene	**2000**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Indeno (1,2,3-cd) pyrene	**1200**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	5	01/02/24	kbc	01/02/24	avl		
Benzo (g,h,i) perylene	**970**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Surrogates:										
Nitrobenzene-d5	70	%	36-98	5	01/02/24	kbc	01/02/24	avl		
2-Fluorobiphenyl	66	%	44-105	5	01/02/24	kbc	01/02/24	avl	N	
Terphenyl-d14	64	%	46-109	5	01/02/24	kbc	01/02/24	avl		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145743										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/03/24	nw	01/03/24	nw		
Chloromethane	<250	ug/kg dry	250	50	01/03/24	nw	01/03/24	nw		
Vinyl chloride	<40	ug/kg dry	40	50	01/03/24	nw	01/03/24	nw		
Bromomethane	<200	ug/kg dry	200	50	01/03/24	nw	01/03/24	nw		
Chloroethane	<250	ug/kg dry	250	50	01/03/24	nw	01/03/24	nw		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
Diethyl ether	<200	ug/kg dry	200	50	01/03/24	nw	01/03/24	nw	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/03/24	nw	01/03/24	nw	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
Acetone	<1000	ug/kg dry	1000	50	01/03/24	nw	01/03/24	nw		
Iodomethane	<110	ug/kg dry	110	50	01/03/24	nw	01/03/24	nw	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/03/24	nw	01/03/24	nw		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/03/24	nw	01/03/24	nw		
Methylene chloride	<250	ug/kg dry	250	50	01/03/24	nw	01/03/24	nw		
Acrylonitrile	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/03/24	nw	01/03/24	nw		
2-Butanone	<750	ug/kg dry	750	50	01/03/24	nw	01/03/24	nw		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/03/24	nw	01/03/24	nw	N	

CERTIFICATE OF ANALYSIS

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-01 Matrix: Solid Date Collected: 12/26/23 09:15
Sample ID: GP-1 (4') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/03/24	nw	01/03/24	nw	N	
Chloroform	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
Benzene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/03/24	nw	01/03/24	nw	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
Cyclohexane	<250	ug/kg dry	250	50	01/03/24	nw	01/03/24	nw	N	
Trichloroethene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
Dibromomethane	<250	ug/kg dry	250	50	01/03/24	nw	01/03/24	nw		
Bromodichloromethane	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/03/24	nw	01/03/24	nw		
Toluene	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
Tetrachloroethene	**130**	**ug/kg dry**	**50**	**50**	**01/03/24**	**nw**	**01/03/24**	**nw**		
2-Hexanone	<2500	ug/kg dry	2500	50	01/03/24	nw	01/03/24	nw		
Dibromochloromethane	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
Chlorobenzene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
Ethylbenzene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
m,p-Xylene	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
o-Xylene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
Xylenes, total	<150	ug/kg dry	150	50	01/03/24	nw	01/03/24	nw		
Styrene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
Bromoform	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
Isopropylbenzene	<250	ug/kg dry	250	50	01/03/24	nw	01/03/24	nw		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-01 Matrix: Solid Date Collected: 12/26/23 09:15
Sample ID: GP-1 (4') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw	N	
Bromobenzene	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
n-Propylbenzene	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
n-Butylbenzene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/03/24	nw	01/03/24	nw	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
Hexachloroethane	<100	ug/kg dry	100	50	01/03/24	nw	01/03/24	nw		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/03/24	nw	01/03/24	nw		
Naphthalene	<330	ug/kg dry	330	50	01/03/24	nw	01/03/24	nw		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/03/24	nw	01/03/24	nw		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/03/24	nw	01/03/24	nw	N	
Surrogates:										
1,2-Dichloroethane-d4	102	%	68-133	50	01/03/24	nw	01/03/24	nw		
Toluene-d8	96	%	75-120	50	01/03/24	nw	01/03/24	nw		
4-Bromofluorobenzene	95	%	69-119	50	01/03/24	nw	01/03/24	nw		
1,2-Dichlorobenzene-d4	99	%	72-127	50	01/03/24	nw	01/03/24	nw		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**92**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-02 Matrix: Solid Date Collected: 12/26/23 09:45
Sample ID: GP-2 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	**2.7**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**11**	**mg/kg dry**	**9.7**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	**4.7**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**4.7**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	**34**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Selenium	**0.58**	**mg/kg dry**	**0.58**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.49	mg/kg dry	0.49	10	01/03/24	fs	01/04/24	acs		
Zinc	**25**	**mg/kg dry**	**4.9**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									407	
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<910	ug/kg dry	910	10	01/02/24	kbc	01/02/24	avl		
2-Methylnaphthalene	<2300	ug/kg dry	2300	10	01/02/24	kbc	01/02/24	avl		
Acenaphthylene	<910	ug/kg dry	910	10	01/02/24	kbc	01/02/24	avl		
Acenaphthene	<910	ug/kg dry	910	10	01/02/24	kbc	01/02/24	avl		
Fluorene	<910	ug/kg dry	910	10	01/02/24	kbc	01/02/24	avl		
Phenanthrene	**8000**	**ug/kg dry**	**360**	**10**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Anthracene	**1900**	**ug/kg dry**	**910**	**10**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Fluoranthene	**14000**	**ug/kg dry**	**360**	**10**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Pyrene	**11000**	**ug/kg dry**	**910**	**10**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Benzo (a) anthracene	**5500**	**ug/kg dry**	**360**	**10**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Chrysene	**5500**	**ug/kg dry**	**360**	**10**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Benzo (b) fluoranthene	**7300**	**ug/kg dry**	**360**	**10**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Benzo (k) fluoranthene	**2200**	**ug/kg dry**	**360**	**10**	**01/02/24**	**kbc**	**01/02/24**	**avl**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-02 Matrix: Solid Date Collected: 12/26/23 09:45
Sample ID: GP-2 (3') Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										407	
Benzo (a) pyrene		**5800**	**ug/kg dry**	**360**	**10**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Indeno (1,2,3-cd) pyrene		**3200**	**ug/kg dry**	**360**	**10**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Dibenz (a,h) anthracene		**770**	**ug/kg dry**	**360**	**10**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Benzo (g,h,i) perylene		**2600**	**ug/kg dry**	**360**	**10**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Surrogates:											
Nitrobenzene-d5		60	%	36-98	10	01/02/24	kbc	01/02/24	avl		
2-Fluorobiphenyl		52	%	44-105	10	01/02/24	kbc	01/02/24	avl	N	
Terphenyl-d14	*		%	46-109	10	01/02/24	kbc	01/02/24	avl	302	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145788											
Dichlorodifluoromethane		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Chloromethane		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Vinyl chloride		<40	ug/kg dry	40	50	01/04/24	nw	01/04/24	nw		
Bromomethane		<200	ug/kg dry	200	50	01/04/24	nw	01/04/24	nw		
Chloroethane		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Trichlorofluoromethane		<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Diethyl ether		<200	ug/kg dry	200	50	01/04/24	nw	01/04/24	nw	N	
Tert-butyl alcohol		<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw	N	
1,1-Dichloroethene		<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Acetone		<1000	ug/kg dry	1000	50	01/04/24	nw	01/04/24	nw		
Iodomethane		<130	ug/kg dry	130	50	01/04/24	nw	01/04/24	nw	N	
Carbon disulfide		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Methyl-tert-butyl ether		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Methylene chloride		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Acrylonitrile		<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
trans-1,2-Dichloroethene		<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1-Dichloroethane		<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Diisopropyl Ether		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
2-Butanone		<750	ug/kg dry	750	50	01/04/24	nw	01/04/24	nw		
cis-1,2-Dichloroethene		<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
t-Butyl Ethyl Ether		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-02 Matrix: Solid Date Collected: 12/26/23 09:45
Sample ID: GP-2 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/04/24	nw	01/04/24	nw	N	
Chloroform	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Cyclohexane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	
Trichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Dibromomethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Bromodichloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw		
Toluene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Tetrachloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
2-Hexanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw		
Dibromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Chlorobenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Ethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
m,p-Xylene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
o-Xylene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Xylenes, total	<150	ug/kg dry	150	50	01/04/24	nw	01/04/24	nw		
Styrene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Bromoform	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Isopropylbenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-02 Matrix: Solid Date Collected: 12/26/23 09:45
Sample ID: GP-2 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw	N	
Bromobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
n-Propylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
n-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Hexachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw		
Naphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw	N	
Surrogates:										
1,2-Dichloroethane-d4	93	%	68-133	50	01/04/24	nw	01/04/24	nw		
Toluene-d8	109	%	75-120	50	01/04/24	nw	01/04/24	nw		
4-Bromofluorobenzene	96	%	69-119	50	01/04/24	nw	01/04/24	nw		
1,2-Dichlorobenzene-d4	100	%	72-127	50	01/04/24	nw	01/04/24	nw		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**91**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-03 Matrix: Solid Date Collected: 12/26/23 10:15
Sample ID: GP-3 (2.5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	**6.4**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**89**	**mg/kg dry**	**9.5**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	**0.80**	**mg/kg dry**	**0.20**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Chromium	**6.4**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**15**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	**50**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Selenium	**2.5**	**mg/kg dry**	**0.57**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.48	mg/kg dry	0.48	10	01/03/24	fs	01/04/24	acs		
Zinc	**94**	**mg/kg dry**	**4.8**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
2-Methylnaphthalene	<480	ug/kg dry	480	2	01/02/24	kbc	01/02/24	avl		
Acenaphthylene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Acenaphthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Fluorene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Phenanthrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Anthracene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Fluoranthene	**350**	**ug/kg dry**	**330**	**2**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Pyrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Benzo (a) anthracene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Chrysene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Benzo (b) fluoranthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Benzo (k) fluoranthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-03 Matrix: Solid Date Collected: 12/26/23 10:15
Sample ID: GP-3 (2.5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Benzo (a) pyrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Surrogates:										
Nitrobenzene-d5	57	%	36-98	2	01/02/24	kbc	01/02/24	avl		
2-Fluorobiphenyl	48	%	44-105	2	01/02/24	kbc	01/02/24	avl	N	
Terphenyl-d14	51	%	46-109	2	01/02/24	kbc	01/02/24	avl		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145788										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Chloromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Vinyl chloride	<40	ug/kg dry	40	50	01/04/24	nw	01/04/24	nw		
Bromomethane	<200	ug/kg dry	200	50	01/04/24	nw	01/04/24	nw		
Chloroethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Diethyl ether	<200	ug/kg dry	200	50	01/04/24	nw	01/04/24	nw	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Acetone	<1000	ug/kg dry	1000	50	01/04/24	nw	01/04/24	nw		
Iodomethane	<170	ug/kg dry	170	50	01/04/24	nw	01/04/24	nw	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Methylene chloride	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Acrylonitrile	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
2-Butanone	<750	ug/kg dry	750	50	01/04/24	nw	01/04/24	nw		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-03 Matrix: Solid Date Collected: 12/26/23 10:15
Sample ID: GP-3 (2.5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/04/24	nw	01/04/24	nw	N	
Chloroform	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Cyclohexane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	
Trichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Dibromomethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Bromodichloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw		
Toluene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Tetrachloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
2-Hexanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw		
Dibromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Chlorobenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Ethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
m,p-Xylene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
o-Xylene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Xylenes, total	<150	ug/kg dry	150	50	01/04/24	nw	01/04/24	nw		
Styrene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Bromoform	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Isopropylbenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-03 Matrix: Solid Date Collected: 12/26/23 10:15
Sample ID: GP-3 (2.5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw	N	
Bromobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
n-Propylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
n-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Hexachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw		
Naphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw	N	
Surrogates:										
1,2-Dichloroethane-d4	94	%	68-133	50	01/04/24	nw	01/04/24	nw		
Toluene-d8	104	%	75-120	50	01/04/24	nw	01/04/24	nw		
4-Bromofluorobenzene	95	%	69-119	50	01/04/24	nw	01/04/24	nw		
1,2-Dichlorobenzene-d4	101	%	72-127	50	01/04/24	nw	01/04/24	nw		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**86**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-04 Matrix: Solid Date Collected: 12/26/23 11:15
Sample ID: GP-4 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	**3.5**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**48**	**mg/kg dry**	**9.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	**3.4**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**5.1**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	<10	mg/kg dry	10	10	01/03/24	fs	01/04/24	acs		
Selenium	**1.7**	**mg/kg dry**	**0.54**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.45	mg/kg dry	0.45	10	01/03/24	fs	01/04/24	acs		
Zinc	**20**	**mg/kg dry**	**4.5**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
2-Methylnaphthalene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Acenaphthylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Acenaphthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Fluorene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Phenanthrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Benzo (a) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Chrysene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Benzo (b) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Benzo (k) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-04 Matrix: Solid Date Collected: 12/26/23 11:15
Sample ID: GP-4 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Benzo (a) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Surrogates:										
Nitrobenzene-d5	53	%	36-98	1	01/02/24	kbc	01/02/24	avl		
2-Fluorobiphenyl	51	%	44-105	1	01/02/24	kbc	01/02/24	avl	N	
Terphenyl-d14	51	%	46-109	1	01/02/24	kbc	01/02/24	avl		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145788										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Chloromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Vinyl chloride	<40	ug/kg dry	40	50	01/04/24	nw	01/04/24	nw		
Bromomethane	<200	ug/kg dry	200	50	01/04/24	nw	01/04/24	nw		
Chloroethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Diethyl ether	<200	ug/kg dry	200	50	01/04/24	nw	01/04/24	nw	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Acetone	<1000	ug/kg dry	1000	50	01/04/24	nw	01/04/24	nw		
Iodomethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Methylene chloride	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Acrylonitrile	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
2-Butanone	<750	ug/kg dry	750	50	01/04/24	nw	01/04/24	nw		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	

CERTIFICATE OF ANALYSIS

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-04 Matrix: Solid Date Collected: 12/26/23 11:15
Sample ID: GP-4 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/04/24	nw	01/04/24	nw	N	
Chloroform	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Cyclohexane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	
Trichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Dibromomethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Bromodichloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw		
Toluene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Tetrachloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
2-Hexanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw		
Dibromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Chlorobenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Ethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
m,p-Xylene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
o-Xylene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Xylenes, total	<150	ug/kg dry	150	50	01/04/24	nw	01/04/24	nw		
Styrene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Bromoform	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Isopropylbenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-04 Matrix: Solid Date Collected: 12/26/23 11:15
Sample ID: GP-4 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw	N	
Bromobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
n-Propylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
n-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Hexachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw		
Naphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw	N	
Surrogates:										
1,2-Dichloroethane-d4	95	%	68-133	50	01/04/24	nw	01/04/24	nw		
Toluene-d8	105	%	75-120	50	01/04/24	nw	01/04/24	nw		
4-Bromofluorobenzene	95	%	69-119	50	01/04/24	nw	01/04/24	nw		
1,2-Dichlorobenzene-d4	100	%	72-127	50	01/04/24	nw	01/04/24	nw		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**93**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-05 Matrix: Solid Date Collected: 12/26/23 11:40
Sample ID: GP-5 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	<2.0	mg/kg dry	2.0	10	01/03/24	fs	01/04/24	acs		
Barium	<9.5	mg/kg dry	9.5	10	01/03/24	fs	01/04/24	acs		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	<2.0	mg/kg dry	2.0	10	01/03/24	fs	01/04/24	acs		
Copper	<1.0	mg/kg dry	1.0	10	01/03/24	fs	01/04/24	acs		
Lead	<10	mg/kg dry	10	10	01/03/24	fs	01/04/24	acs		
Selenium	<0.57	mg/kg dry	0.57	10	01/03/24	fs	01/04/24	acs		
Silver	<0.47	mg/kg dry	0.47	10	01/03/24	fs	01/04/24	acs		
Zinc	**6.5**	**mg/kg dry**	**4.7**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
2-Methylnaphthalene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Acenaphthylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Acenaphthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Fluorene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Phenanthrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Benzo (a) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Chrysene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Benzo (b) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Benzo (k) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-05 Matrix: Solid Date Collected: 12/26/23 11:40
Sample ID: GP-5 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Benzo (a) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/02/24	avl		
Surrogates:										
Nitrobenzene-d5	77	%	36-98	1	01/02/24	kbc	01/02/24	avl		
2-Fluorobiphenyl	70	%	44-105	1	01/02/24	kbc	01/02/24	avl	N	
Terphenyl-d14	79	%	46-109	1	01/02/24	kbc	01/02/24	avl		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145788										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Chloromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Vinyl chloride	<40	ug/kg dry	40	50	01/04/24	nw	01/04/24	nw		
Bromomethane	<200	ug/kg dry	200	50	01/04/24	nw	01/04/24	nw		
Chloroethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Diethyl ether	<200	ug/kg dry	200	50	01/04/24	nw	01/04/24	nw	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Acetone	<1000	ug/kg dry	1000	50	01/04/24	nw	01/04/24	nw		
Iodomethane	<110	ug/kg dry	110	50	01/04/24	nw	01/04/24	nw	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Methylene chloride	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Acrylonitrile	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
2-Butanone	<750	ug/kg dry	750	50	01/04/24	nw	01/04/24	nw		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-05 Matrix: Solid Date Collected: 12/26/23 11:40
Sample ID: GP-5 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/04/24	nw	01/04/24	nw	N	
Chloroform	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Cyclohexane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	
Trichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Dibromomethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Bromodichloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw		
Toluene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Tetrachloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
2-Hexanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw		
Dibromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Chlorobenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Ethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
m,p-Xylene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
o-Xylene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Xylenes, total	<150	ug/kg dry	150	50	01/04/24	nw	01/04/24	nw		
Styrene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Bromoform	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Isopropylbenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-05 Matrix: Solid Date Collected: 12/26/23 11:40
Sample ID: GP-5 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw	N	
Bromobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
n-Propylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
n-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Hexachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw		
Naphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw	N	
Surrogates:										
1,2-Dichloroethane-d4	96	%	68-133	50	01/04/24	nw	01/04/24	nw		
Toluene-d8	105	%	75-120	50	01/04/24	nw	01/04/24	nw		
4-Bromofluorobenzene	93	%	69-119	50	01/04/24	nw	01/04/24	nw		
1,2-Dichlorobenzene-d4	100	%	72-127	50	01/04/24	nw	01/04/24	nw		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**95**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-06 Matrix: Solid Date Collected: 12/26/23 13:00
Sample ID: GP-6 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	**0.19**	**mg/kg dry**	**0.050**	**1**	**01/04/24**	**fs**	**01/05/24**	**jma**		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	**4.1**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**64**	**mg/kg dry**	**9.6**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	**0.83**	**mg/kg dry**	**0.20**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Chromium	**12**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**23**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	**110**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Selenium	**1.6**	**mg/kg dry**	**0.58**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.48	mg/kg dry	0.48	10	01/03/24	fs	01/04/24	acs		
Zinc	**230**	**mg/kg dry**	**4.8**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									407	
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<490	ug/kg dry	490	5	01/02/24	kbc	01/02/24	avl		
2-Methylnaphthalene	<1200	ug/kg dry	1200	5	01/02/24	kbc	01/02/24	avl		
Acenaphthylene	<490	ug/kg dry	490	5	01/02/24	kbc	01/02/24	avl		
Acenaphthene	<490	ug/kg dry	490	5	01/02/24	kbc	01/02/24	avl		
Fluorene	<490	ug/kg dry	490	5	01/02/24	kbc	01/02/24	avl		
Phenanthrene	**3500**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Anthracene	<490	ug/kg dry	490	5	01/02/24	kbc	01/02/24	avl		
Fluoranthene	**3300**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Pyrene	**2500**	**ug/kg dry**	**490**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Benzo (a) anthracene	**950**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Chrysene	**1100**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Benzo (b) fluoranthene	**1700**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Benzo (k) fluoranthene	**560**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-06 Matrix: Solid Date Collected: 12/26/23 13:00
Sample ID: GP-6 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									407	
Benzo (a) pyrene	**1400**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Indeno (1,2,3-cd) pyrene	**750**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	5	01/02/24	kbc	01/02/24	avl		
Benzo (g,h,i) perylene	**590**	**ug/kg dry**	**330**	**5**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Surrogates:										
Nitrobenzene-d5	68	%	36-98	5	01/02/24	kbc	01/02/24	avl		
2-Fluorobiphenyl	52	%	44-105	5	01/02/24	kbc	01/02/24	avl	N	
Terphenyl-d14	51	%	46-109	5	01/02/24	kbc	01/02/24	avl		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145788										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Chloromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Vinyl chloride	<40	ug/kg dry	40	50	01/04/24	nw	01/04/24	nw		
Bromomethane	<200	ug/kg dry	200	50	01/04/24	nw	01/04/24	nw		
Chloroethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Diethyl ether	<200	ug/kg dry	200	50	01/04/24	nw	01/04/24	nw	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Acetone	<1000	ug/kg dry	1000	50	01/04/24	nw	01/04/24	nw		
Iodomethane	<160	ug/kg dry	160	50	01/04/24	nw	01/04/24	nw	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Methylene chloride	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Acrylonitrile	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
2-Butanone	<750	ug/kg dry	750	50	01/04/24	nw	01/04/24	nw		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-06 Matrix: Solid Date Collected: 12/26/23 13:00
Sample ID: GP-6 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/04/24	nw	01/04/24	nw	N	
Chloroform	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Cyclohexane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	
Trichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Dibromomethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Bromodichloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw		
Toluene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Tetrachloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
2-Hexanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw		
Dibromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Chlorobenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Ethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
m,p-Xylene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
o-Xylene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Xylenes, total	<150	ug/kg dry	150	50	01/04/24	nw	01/04/24	nw		
Styrene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Bromoform	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Isopropylbenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-06 Matrix: Solid Date Collected: 12/26/23 13:00
Sample ID: GP-6 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw	N	
Bromobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
n-Propylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
n-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Hexachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw		
Naphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw	N	
Surrogates:										
1,2-Dichloroethane-d4	96	%	68-133	50	01/04/24	nw	01/04/24	nw		
Toluene-d8	101	%	75-120	50	01/04/24	nw	01/04/24	nw		
4-Bromofluorobenzene	95	%	69-119	50	01/04/24	nw	01/04/24	nw		
1,2-Dichlorobenzene-d4	100	%	72-127	50	01/04/24	nw	01/04/24	nw		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**84**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-07 Matrix: Solid Date Collected: 12/26/23 13:41
Sample ID: GP-7 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	**35**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**19**	**mg/kg dry**	**9.7**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	**45**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**66**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	<10	mg/kg dry	10	10	01/03/24	fs	01/04/24	acs		
Selenium	**0.58**	**mg/kg dry**	**0.58**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.49	mg/kg dry	0.49	10	01/03/24	fs	01/04/24	acs		
Zinc	**9.3**	**mg/kg dry**	**4.9**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
2-Methylnaphthalene	<500	ug/kg dry	500	2	01/02/24	kbc	01/02/24	avl		
Acenaphthylene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Acenaphthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Fluorene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Phenanthrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Anthracene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Fluoranthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Pyrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Benzo (a) anthracene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Chrysene	**340**	**ug/kg dry**	**330**	**2**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Benzo (b) fluoranthene	**780**	**ug/kg dry**	**330**	**2**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Benzo (k) fluoranthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-07 Matrix: Solid Date Collected: 12/26/23 13:41
Sample ID: GP-7 (3') Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Benzo (a) pyrene		**570**	**ug/kg dry**	**330**	**2**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Indeno (1,2,3-cd) pyrene		**370**	**ug/kg dry**	**330**	**2**	**01/02/24**	**kbc**	**01/02/24**	**avl**		
Dibenz (a,h) anthracene		<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Benzo (g,h,i) perylene		<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Surrogates:											
Nitrobenzene-d5		37	%	36-98	2	01/02/24	kbc	01/02/24	avl		
2-Fluorobiphenyl	*	**27**	%	44-105	2	01/02/24	kbc	01/02/24	avl	314, N	
Terphenyl-d14	*	**28**	%	46-109	2	01/02/24	kbc	01/02/24	avl	314	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145788											
Dichlorodifluoromethane		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Chloromethane		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Vinyl chloride		<40	ug/kg dry	40	50	01/04/24	nw	01/04/24	nw		
Bromomethane		<200	ug/kg dry	200	50	01/04/24	nw	01/04/24	nw		
Chloroethane		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Trichlorofluoromethane		<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Diethyl ether		<200	ug/kg dry	200	50	01/04/24	nw	01/04/24	nw	N	
Tert-butyl alcohol		<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw	N	
1,1-Dichloroethene		<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Acetone		<1000	ug/kg dry	1000	50	01/04/24	nw	01/04/24	nw		
Iodomethane		<150	ug/kg dry	150	50	01/04/24	nw	01/04/24	nw	N	
Carbon disulfide		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Methyl-tert-butyl ether		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Methylene chloride		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Acrylonitrile		<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
trans-1,2-Dichloroethene		<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1-Dichloroethane		<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Diisopropyl Ether		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
2-Butanone		<750	ug/kg dry	750	50	01/04/24	nw	01/04/24	nw		
cis-1,2-Dichloroethene		<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
t-Butyl Ethyl Ether		<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	

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TRACE ANALYTICAL LABORATORIES, INC.

231-773-5998 Phone
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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-07 Matrix: Solid Date Collected: 12/26/23 13:41
Sample ID: GP-7 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/04/24	nw	01/04/24	nw	N	
Chloroform	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Cyclohexane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw	N	
Trichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Dibromomethane	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
Bromodichloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw		
Toluene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Tetrachloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
2-Hexanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/04/24	nw		
Dibromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Chlorobenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Ethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
m,p-Xylene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
o-Xylene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Xylenes, total	<150	ug/kg dry	150	50	01/04/24	nw	01/04/24	nw		
Styrene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
Bromoform	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Isopropylbenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		

CERTIFICATE OF ANALYSIS

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-07 Matrix: Solid Date Collected: 12/26/23 13:41
Sample ID: GP-7 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw	N	
Bromobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
n-Propylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
n-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/04/24	nw	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
Hexachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/04/24	nw		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw		
Naphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/04/24	nw		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/04/24	nw	N	
Surrogates:										
1,2-Dichloroethane-d4	97	%	68-133	50	01/04/24	nw	01/04/24	nw		
Toluene-d8	102	%	75-120	50	01/04/24	nw	01/04/24	nw		
4-Bromofluorobenzene	96	%	69-119	50	01/04/24	nw	01/04/24	nw		
1,2-Dichlorobenzene-d4	100	%	72-127	50	01/04/24	nw	01/04/24	nw		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**83**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-08 Matrix: Solid Date Collected: 12/26/23 13:41
Sample ID: GP-7 (3') Dup. Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	**5.2**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**35**	**mg/kg dry**	**9.5**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	**9.5**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**20**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	**58**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Selenium	**1.6**	**mg/kg dry**	**0.57**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.47	mg/kg dry	0.47	10	01/03/24	fs	01/04/24	acs		
Zinc	**41**	**mg/kg dry**	**4.7**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
2-Methylnaphthalene	<460	ug/kg dry	460	2	01/02/24	kbc	01/02/24	avl		
Acenaphthylene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Acenaphthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Fluorene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Phenanthrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Anthracene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Fluoranthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Pyrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Benzo (a) anthracene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Chrysene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Benzo (b) fluoranthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Benzo (k) fluoranthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-08 Matrix: Solid Date Collected: 12/26/23 13:41
Sample ID: GP-7 (3') Dup. Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Benzo (a) pyrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	2	01/02/24	kbc	01/02/24	avl		
Surrogates:										
Nitrobenzene-d5	65	%	36-98	2	01/02/24	kbc	01/02/24	avl		
2-Fluorobiphenyl	58	%	44-105	2	01/02/24	kbc	01/02/24	avl	N	
Terphenyl-d14	54	%	46-109	2	01/02/24	kbc	01/02/24	avl		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145788										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Chloromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Vinyl chloride	<40	ug/kg dry	40	50	01/04/24	nw	01/05/24	nw		
Bromomethane	<200	ug/kg dry	200	50	01/04/24	nw	01/05/24	nw		
Chloroethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Diethyl ether	<200	ug/kg dry	200	50	01/04/24	nw	01/05/24	nw	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Acetone	<1000	ug/kg dry	1000	50	01/04/24	nw	01/05/24	nw		
Iodomethane	<120	ug/kg dry	120	50	01/04/24	nw	01/05/24	nw	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Methylene chloride	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Acrylonitrile	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
2-Butanone	<750	ug/kg dry	750	50	01/04/24	nw	01/05/24	nw		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-08 Matrix: Solid Date Collected: 12/26/23 13:41
Sample ID: GP-7 (3') Dup. Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/04/24	nw	01/05/24	nw	N	
Chloroform	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Cyclohexane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	
Trichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Dibromomethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Bromodichloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw		
Toluene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Tetrachloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
2-Hexanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw		
Dibromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Chlorobenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Ethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
m,p-Xylene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
o-Xylene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Xylenes, total	<150	ug/kg dry	150	50	01/04/24	nw	01/05/24	nw		
Styrene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Bromoform	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Isopropylbenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-08 Matrix: Solid Date Collected: 12/26/23 13:41
Sample ID: GP-7 (3') Dup. Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw	N	
Bromobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
n-Propylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
n-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Hexachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw		
Naphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw	N	
Surrogates:										
1,2-Dichloroethane-d4	96	%	68-133	50	01/04/24	nw	01/05/24	nw		
Toluene-d8	103	%	75-120	50	01/04/24	nw	01/05/24	nw		
4-Bromofluorobenzene	95	%	69-119	50	01/04/24	nw	01/05/24	nw		
1,2-Dichlorobenzene-d4	100	%	72-127	50	01/04/24	nw	01/05/24	nw		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**90**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-09 Matrix: Solid Date Collected: 12/26/23 14:26
Sample ID: GP-8 (8') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	**2.8**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**42**	**mg/kg dry**	**8.9**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	**7.0**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**11**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	**54**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Selenium	**0.86**	**mg/kg dry**	**0.54**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.45	mg/kg dry	0.45	10	01/03/24	fs	01/04/24	acs		
Zinc	**43**	**mg/kg dry**	**4.5**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
2-Methylnaphthalene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Acenaphthylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Acenaphthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Fluorene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Phenanthrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Benzo (a) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Chrysene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Benzo (b) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Benzo (k) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-09 Matrix: Solid Date Collected: 12/26/23 14:26
Sample ID: GP-8 (8') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Benzo (a) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Surrogates:										
Nitrobenzene-d5	80	%	36-98	1	01/02/24	kbc	01/03/24	avl		
2-Fluorobiphenyl	69	%	44-105	1	01/02/24	kbc	01/03/24	avl	N	
Terphenyl-d14	73	%	46-109	1	01/02/24	kbc	01/03/24	avl		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145788										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Chloromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Vinyl chloride	<40	ug/kg dry	40	50	01/04/24	nw	01/05/24	nw		
Bromomethane	<200	ug/kg dry	200	50	01/04/24	nw	01/05/24	nw		
Chloroethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Diethyl ether	<200	ug/kg dry	200	50	01/04/24	nw	01/05/24	nw	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Acetone	<1000	ug/kg dry	1000	50	01/04/24	nw	01/05/24	nw		
Iodomethane	<110	ug/kg dry	110	50	01/04/24	nw	01/05/24	nw	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Methylene chloride	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Acrylonitrile	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
2-Butanone	<750	ug/kg dry	750	50	01/04/24	nw	01/05/24	nw		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-09 Matrix: Solid Date Collected: 12/26/23 14:26
Sample ID: GP-8 (8') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/04/24	nw	01/05/24	nw	N	
Chloroform	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Cyclohexane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	
Trichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Dibromomethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Bromodichloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw		
Toluene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Tetrachloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
2-Hexanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw		
Dibromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Chlorobenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Ethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
m,p-Xylene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
o-Xylene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Xylenes, total	<150	ug/kg dry	150	50	01/04/24	nw	01/05/24	nw		
Styrene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Bromoform	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Isopropylbenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-09 Matrix: Solid Date Collected: 12/26/23 14:26
Sample ID: GP-8 (8') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw	N	
Bromobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
n-Propylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
n-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Hexachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw		
Naphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw	N	
Surrogates:										
1,2-Dichloroethane-d4	96	%	68-133	50	01/04/24	nw	01/05/24	nw		
Toluene-d8	102	%	75-120	50	01/04/24	nw	01/05/24	nw		
4-Bromofluorobenzene	95	%	69-119	50	01/04/24	nw	01/05/24	nw		
1,2-Dichlorobenzene-d4	99	%	72-127	50	01/04/24	nw	01/05/24	nw		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**95**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-10 Matrix: Solid Date Collected: 12/26/23 15:00
Sample ID: GP-9 (6') Dup. Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	<2.0	mg/kg dry	2.0	10	01/03/24	fs	01/04/24	acs		
Barium	**24**	**mg/kg dry**	**9.1**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	**4.6**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**5.3**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	<10	mg/kg dry	10	10	01/03/24	fs	01/04/24	acs		
Selenium	**0.79**	**mg/kg dry**	**0.55**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.46	mg/kg dry	0.46	10	01/03/24	fs	01/04/24	acs		
Zinc	**15**	**mg/kg dry**	**4.6**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
2-Methylnaphthalene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Acenaphthylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Acenaphthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Fluorene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Phenanthrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Benzo (a) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Chrysene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Benzo (b) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Benzo (k) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-10 Matrix: Solid Date Collected: 12/26/23 15:00
Sample ID: GP-9 (6') Dup. Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Benzo (a) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	avl		
Surrogates:										
Nitrobenzene-d5	78	%	36-98	1	01/02/24	kbc	01/03/24	avl		
2-Fluorobiphenyl	68	%	44-105	1	01/02/24	kbc	01/03/24	avl	N	
Terphenyl-d14	70	%	46-109	1	01/02/24	kbc	01/03/24	avl		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145788										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Chloromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Vinyl chloride	<40	ug/kg dry	40	50	01/04/24	nw	01/05/24	nw		
Bromomethane	<200	ug/kg dry	200	50	01/04/24	nw	01/05/24	nw		
Chloroethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Diethyl ether	<200	ug/kg dry	200	50	01/04/24	nw	01/05/24	nw	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Acetone	<1000	ug/kg dry	1000	50	01/04/24	nw	01/05/24	nw		
Iodomethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Methylene chloride	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Acrylonitrile	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
2-Butanone	<750	ug/kg dry	750	50	01/04/24	nw	01/05/24	nw		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-10 Matrix: Solid Date Collected: 12/26/23 15:00
Sample ID: GP-9 (6') Dup. Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/04/24	nw	01/05/24	nw	N	
Chloroform	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Cyclohexane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	
Trichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Dibromomethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Bromodichloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw		
Toluene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Tetrachloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
2-Hexanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw		
Dibromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Chlorobenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Ethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
m,p-Xylene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
o-Xylene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Xylenes, total	<150	ug/kg dry	150	50	01/04/24	nw	01/05/24	nw		
Styrene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Bromoform	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Isopropylbenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-10 Matrix: Solid Date Collected: 12/26/23 15:00
Sample ID: GP-9 (6') Dup. Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw	N	
Bromobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
n-Propylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
n-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Hexachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw		
Naphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw	N	
Surrogates:										
1,2-Dichloroethane-d4	95	%	68-133	50	01/04/24	nw	01/05/24	nw		
Toluene-d8	103	%	75-120	50	01/04/24	nw	01/05/24	nw		
4-Bromofluorobenzene	95	%	69-119	50	01/04/24	nw	01/05/24	nw		
1,2-Dichlorobenzene-d4	100	%	72-127	50	01/04/24	nw	01/05/24	nw		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**91**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-11 Matrix: Solid Date Collected: 12/26/23 15:30
Sample ID: GP-10 (5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	**2.2**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**20**	**mg/kg dry**	**9.3**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	**13**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**8.4**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	**17**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Selenium	**1.1**	**mg/kg dry**	**0.56**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.46	mg/kg dry	0.46	10	01/03/24	fs	01/04/24	acs		
Zinc	**35**	**mg/kg dry**	**4.6**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									404	
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
2-Methylnaphthalene	<460	ug/kg dry	460	2	01/02/24	kbc	01/03/24	drm		
Acenaphthylene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Acenaphthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Fluorene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Phenanthrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Anthracene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Fluoranthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Pyrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Benzo (a) anthracene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Chrysene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Benzo (b) fluoranthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Benzo (k) fluoranthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-11 Matrix: Solid Date Collected: 12/26/23 15:30
Sample ID: GP-10 (5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									404	
Benzo (a) pyrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Surrogates:										
Nitrobenzene-d5	60	%	36-98	2	01/02/24	kbc	01/03/24	drm		
2-Fluorobiphenyl	59	%	44-105	2	01/02/24	kbc	01/03/24	drm	N	
Terphenyl-d14	54	%	46-109	2	01/02/24	kbc	01/03/24	drm		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145788										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Chloromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Vinyl chloride	<40	ug/kg dry	40	50	01/04/24	nw	01/05/24	nw		
Bromomethane	<200	ug/kg dry	200	50	01/04/24	nw	01/05/24	nw		
Chloroethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Diethyl ether	<200	ug/kg dry	200	50	01/04/24	nw	01/05/24	nw	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Acetone	<1000	ug/kg dry	1000	50	01/04/24	nw	01/05/24	nw		
Iodomethane	<110	ug/kg dry	110	50	01/04/24	nw	01/05/24	nw	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Methylene chloride	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Acrylonitrile	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
2-Butanone	<750	ug/kg dry	750	50	01/04/24	nw	01/05/24	nw		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-11 Matrix: Solid Date Collected: 12/26/23 15:30
Sample ID: GP-10 (5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/04/24	nw	01/05/24	nw	N	
Chloroform	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Cyclohexane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	
Trichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Dibromomethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Bromodichloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw		
Toluene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Tetrachloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
2-Hexanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw		
Dibromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Chlorobenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Ethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
m,p-Xylene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
o-Xylene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Xylenes, total	<150	ug/kg dry	150	50	01/04/24	nw	01/05/24	nw		
Styrene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Bromoform	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Isopropylbenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-11 Matrix: Solid Date Collected: 12/26/23 15:30
Sample ID: GP-10 (5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw	N	
Bromobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
n-Propylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
n-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Hexachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw		
Naphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw	N	
Surrogates:										
1,2-Dichloroethane-d4	97	%	68-133	50	01/04/24	nw	01/05/24	nw		
Toluene-d8	105	%	75-120	50	01/04/24	nw	01/05/24	nw		
4-Bromofluorobenzene	95	%	69-119	50	01/04/24	nw	01/05/24	nw		
1,2-Dichlorobenzene-d4	100	%	72-127	50	01/04/24	nw	01/05/24	nw		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**90**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-12 Matrix: Solid Date Collected: 12/26/23 16:04
Sample ID: GP-11 (9') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	**2.6**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**29**	**mg/kg dry**	**8.3**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	**9.8**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**7.4**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	**30**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Selenium	**1.3**	**mg/kg dry**	**0.50**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.42	mg/kg dry	0.42	10	01/03/24	fs	01/04/24	acs		
Zinc	**30**	**mg/kg dry**	**4.2**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
2-Methylnaphthalene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
Acenaphthylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
Acenaphthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
Fluorene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
Phenanthrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
Anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
Fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
Pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
Benzo (a) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
Chrysene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
Benzo (b) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
Benzo (k) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-12 Matrix: Solid Date Collected: 12/26/23 16:04
Sample ID: GP-11 (9') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Benzo (a) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/03/24	drm		
Surrogates:										
Nitrobenzene-d5	69	%	36-98	1	01/02/24	kbc	01/03/24	drm		
2-Fluorobiphenyl	65	%	44-105	1	01/02/24	kbc	01/03/24	drm	N	
Terphenyl-d14	55	%	46-109	1	01/02/24	kbc	01/03/24	drm		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145788										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Chloromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Vinyl chloride	<40	ug/kg dry	40	50	01/04/24	nw	01/05/24	nw		
Bromomethane	<200	ug/kg dry	200	50	01/04/24	nw	01/05/24	nw		
Chloroethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Diethyl ether	<200	ug/kg dry	200	50	01/04/24	nw	01/05/24	nw	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Acetone	<1000	ug/kg dry	1000	50	01/04/24	nw	01/05/24	nw		
Iodomethane	<110	ug/kg dry	110	50	01/04/24	nw	01/05/24	nw	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Methylene chloride	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Acrylonitrile	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
2-Butanone	<750	ug/kg dry	750	50	01/04/24	nw	01/05/24	nw		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-12 Matrix: Solid Date Collected: 12/26/23 16:04
Sample ID: GP-11 (9') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/04/24	nw	01/05/24	nw	N	
Chloroform	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Cyclohexane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	
Trichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Dibromomethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Bromodichloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw		
Toluene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Tetrachloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
2-Hexanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw		
Dibromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Chlorobenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Ethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
m,p-Xylene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
o-Xylene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Xylenes, total	<150	ug/kg dry	150	50	01/04/24	nw	01/05/24	nw		
Styrene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Bromoform	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Isopropylbenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-12 Matrix: Solid Date Collected: 12/26/23 16:04
Sample ID: GP-11 (9') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw	N	
Bromobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
n-Propylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
n-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Hexachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw		
Naphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw	N	
Surrogates:										
1,2-Dichloroethane-d4	98	%	68-133	50	01/04/24	nw	01/05/24	nw		
Toluene-d8	102	%	75-120	50	01/04/24	nw	01/05/24	nw		
4-Bromofluorobenzene	94	%	69-119	50	01/04/24	nw	01/05/24	nw		
1,2-Dichlorobenzene-d4	100	%	72-127	50	01/04/24	nw	01/05/24	nw		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**89**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-13 Matrix: Solid Date Collected: 12/26/23 16:40
Sample ID: GP-12 (6') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	<2.0	mg/kg dry	2.0	10	01/03/24	fs	01/04/24	acs		
Barium	<9.7	mg/kg dry	9.7	10	01/03/24	fs	01/04/24	acs		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	**2.4**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**2.3**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	<10	mg/kg dry	10	10	01/03/24	fs	01/04/24	acs		
Selenium	<0.58	mg/kg dry	0.58	10	01/03/24	fs	01/04/24	acs		
Silver	<0.49	mg/kg dry	0.49	10	01/03/24	fs	01/04/24	acs		
Zinc	**15**	**mg/kg dry**	**4.9**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									404	
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
2-Methylnaphthalene	<450	ug/kg dry	450	2	01/02/24	kbc	01/03/24	drm		
Acenaphthylene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Acenaphthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Fluorene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Phenanthrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Anthracene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Fluoranthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Pyrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Benzo (a) anthracene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Chrysene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Benzo (b) fluoranthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Benzo (k) fluoranthene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-13 Matrix: Solid Date Collected: 12/26/23 16:40
Sample ID: GP-12 (6') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									404	
Benzo (a) pyrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	2	01/02/24	kbc	01/03/24	drm		
Surrogates:										
Nitrobenzene-d5	63	%	36-98	2	01/02/24	kbc	01/03/24	drm		
2-Fluorobiphenyl	71	%	44-105	2	01/02/24	kbc	01/03/24	drm	N	
Terphenyl-d14	67	%	46-109	2	01/02/24	kbc	01/03/24	drm		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145788										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Chloromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Vinyl chloride	<40	ug/kg dry	40	50	01/04/24	nw	01/05/24	nw		
Bromomethane	<200	ug/kg dry	200	50	01/04/24	nw	01/05/24	nw		
Chloroethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Diethyl ether	<200	ug/kg dry	200	50	01/04/24	nw	01/05/24	nw	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Acetone	<1000	ug/kg dry	1000	50	01/04/24	nw	01/05/24	nw		
Iodomethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Methylene chloride	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Acrylonitrile	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
2-Butanone	<750	ug/kg dry	750	50	01/04/24	nw	01/05/24	nw		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-13 Matrix: Solid Date Collected: 12/26/23 16:40
Sample ID: GP-12 (6') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/04/24	nw	01/05/24	nw	N	
Chloroform	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Cyclohexane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	
Trichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Dibromomethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Bromodichloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw		
Toluene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Tetrachloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
2-Hexanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw		
Dibromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Chlorobenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Ethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
m,p-Xylene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
o-Xylene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Xylenes, total	<150	ug/kg dry	150	50	01/04/24	nw	01/05/24	nw		
Styrene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Bromoform	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Isopropylbenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-13 Matrix: Solid Date Collected: 12/26/23 16:40
Sample ID: GP-12 (6') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw	N	
Bromobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
n-Propylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
n-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Hexachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw		
Naphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw	N	
Surrogates:										
1,2-Dichloroethane-d4	98	%	68-133	50	01/04/24	nw	01/05/24	nw		
Toluene-d8	102	%	75-120	50	01/04/24	nw	01/05/24	nw		
4-Bromofluorobenzene	95	%	69-119	50	01/04/24	nw	01/05/24	nw		
1,2-Dichlorobenzene-d4	101	%	72-127	50	01/04/24	nw	01/05/24	nw		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**92**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-14 Matrix: Solid Date Collected: 12/27/23 08:30
Sample ID: GP-13 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	**0.070**	**mg/kg dry**	**0.050**	**1**	**01/04/24**	**fs**	**01/05/24**	**jma**		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	**3.4**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**42**	**mg/kg dry**	**9.3**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	**0.26**	**mg/kg dry**	**0.20**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Chromium	**8.4**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**13**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	**57**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Selenium	**1.3**	**mg/kg dry**	**0.56**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.46	mg/kg dry	0.46	10	01/03/24	fs	01/04/24	acs		
Zinc	**52**	**mg/kg dry**	**4.6**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									407	
Analysis Method: EPA 8270E										
Batch: T145683										
Naphthalene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm		
2-Methylnaphthalene	<480	ug/kg dry	480	2	01/03/24	kbc	01/08/24	drm		
Acenaphthylene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm		
Acenaphthene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm		
Fluorene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm		
Phenanthrene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm	105	
Anthracene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm		
Fluoranthene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm		
Pyrene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm		
Benzo (a) anthracene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm		
Chrysene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm		
Benzo (b) fluoranthene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm		
Benzo (k) fluoranthene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-14 Matrix: Solid Date Collected: 12/27/23 08:30
Sample ID: GP-13 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									407	
Benzo (a) pyrene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	2	01/03/24	kbc	01/08/24	drm		
Surrogates:										
Nitrobenzene-d5	81	%	36-98	2	01/03/24	kbc	01/08/24	drm		
2-Fluorobiphenyl	76	%	44-105	2	01/03/24	kbc	01/08/24	drm	N	
Terphenyl-d14	70	%	46-109	2	01/03/24	kbc	01/08/24	drm		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145788										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Chloromethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Vinyl chloride	<40	ug/kg dry	40	50	01/04/24	nw	01/05/24	nw		
Bromomethane	<200	ug/kg dry	200	50	01/04/24	nw	01/05/24	nw		
Chloroethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Diethyl ether	<200	ug/kg dry	200	50	01/04/24	nw	01/05/24	nw	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Acetone	<1000	ug/kg dry	1000	50	01/04/24	nw	01/05/24	nw		
Iodomethane	<120	ug/kg dry	120	50	01/04/24	nw	01/05/24	nw	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Methylene chloride	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Acrylonitrile	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
2-Butanone	<750	ug/kg dry	750	50	01/04/24	nw	01/05/24	nw		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-14 Matrix: Solid Date Collected: 12/27/23 08:30
Sample ID: GP-13 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/04/24	nw	01/05/24	nw	N	
Chloroform	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Cyclohexane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw	N	
Trichloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Dibromomethane	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
Bromodichloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw		
Toluene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Tetrachloroethene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
2-Hexanone	<2500	ug/kg dry	2500	50	01/04/24	nw	01/05/24	nw		
Dibromochloromethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Chlorobenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Ethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
m,p-Xylene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
o-Xylene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Xylenes, total	<150	ug/kg dry	150	50	01/04/24	nw	01/05/24	nw		
Styrene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
Bromoform	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Isopropylbenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-14 Matrix: Solid Date Collected: 12/27/23 08:30
Sample ID: GP-13 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw	N	
Bromobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
n-Propylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
n-Butylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/04/24	nw	01/05/24	nw	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
Hexachloroethane	<100	ug/kg dry	100	50	01/04/24	nw	01/05/24	nw		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw		
Naphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/04/24	nw	01/05/24	nw		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/04/24	nw	01/05/24	nw	N	
Surrogates:										
1,2-Dichloroethane-d4	97	%	68-133	50	01/04/24	nw	01/05/24	nw		
Toluene-d8	104	%	75-120	50	01/04/24	nw	01/05/24	nw		
4-Bromofluorobenzene	95	%	69-119	50	01/04/24	nw	01/05/24	nw		
1,2-Dichlorobenzene-d4	100	%	72-127	50	01/04/24	nw	01/05/24	nw		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**87**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-15 Matrix: Solid Date Collected: 12/27/23 09:00
Sample ID: GP-14 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	**0.091**	**mg/kg dry**	**0.050**	**1**	**01/04/24**	**fs**	**01/05/24**	**jma**		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	**3.7**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**34**	**mg/kg dry**	**9.4**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	**0.33**	**mg/kg dry**	**0.20**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Chromium	**8.5**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**14**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	**57**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Selenium	**1.1**	**mg/kg dry**	**0.56**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.47	mg/kg dry	0.47	10	01/03/24	fs	01/04/24	acs		
Zinc	**65**	**mg/kg dry**	**4.7**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									407	
Analysis Method: EPA 8270E										
Batch: T145683										
Naphthalene	<490	ug/kg dry	490	5	01/03/24	kbc	01/08/24	drm		
2-Methylnaphthalene	<1200	ug/kg dry	1200	5	01/03/24	kbc	01/08/24	drm		
Acenaphthylene	<490	ug/kg dry	490	5	01/03/24	kbc	01/08/24	drm		
Acenaphthene	<490	ug/kg dry	490	5	01/03/24	kbc	01/08/24	drm		
Fluorene	<490	ug/kg dry	490	5	01/03/24	kbc	01/08/24	drm		
Phenanthrene	<330	ug/kg dry	330	5	01/03/24	kbc	01/08/24	drm	105	
Anthracene	<490	ug/kg dry	490	5	01/03/24	kbc	01/08/24	drm		
Fluoranthene	<330	ug/kg dry	330	5	01/03/24	kbc	01/08/24	drm		
Pyrene	<490	ug/kg dry	490	5	01/03/24	kbc	01/08/24	drm		
Benzo (a) anthracene	<330	ug/kg dry	330	5	01/03/24	kbc	01/08/24	drm		
Chrysene	<330	ug/kg dry	330	5	01/03/24	kbc	01/08/24	drm		
Benzo (b) fluoranthene	<330	ug/kg dry	330	5	01/03/24	kbc	01/08/24	drm		
Benzo (k) fluoranthene	<330	ug/kg dry	330	5	01/03/24	kbc	01/08/24	drm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-15 Matrix: Solid Date Collected: 12/27/23 09:00
Sample ID: GP-14 (3') Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										407	
Benzo (a) pyrene		<330	ug/kg dry	330	5	01/03/24	kbc	01/08/24	drm		
Indeno (1,2,3-cd) pyrene		<330	ug/kg dry	330	5	01/03/24	kbc	01/08/24	drm		
Dibenz (a,h) anthracene		<330	ug/kg dry	330	5	01/03/24	kbc	01/08/24	drm		
Benzo (g,h,i) perylene		<330	ug/kg dry	330	5	01/03/24	kbc	01/08/24	drm		
Surrogates:											
Nitrobenzene-d5	*		%	36-98	5	01/03/24	kbc	01/08/24	drm	301	
2-Fluorobiphenyl	*		%	44-105	5	01/03/24	kbc	01/08/24	drm	301, N	
Terphenyl-d14	*		%	46-109	5	01/03/24	kbc	01/08/24	drm	301	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145827											
Dichlorodifluoromethane		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Chloromethane		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Vinyl chloride		<40	ug/kg dry	40	50	01/05/24	ats	01/06/24	ats		
Bromomethane		<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats		
Chloroethane		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Trichlorofluoromethane		<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Diethyl ether		<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats	N	
Tert-butyl alcohol		<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats	N	
1,1-Dichloroethene		<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Acetone		<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats		
Iodomethane		<130	ug/kg dry	130	50	01/05/24	ats	01/06/24	ats	N	
Carbon disulfide		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methyl-tert-butyl ether		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methylene chloride		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Acrylonitrile		<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,2-Dichloroethene		<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1-Dichloroethane		<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Diisopropyl Ether		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Butanone		<750	ug/kg dry	750	50	01/05/24	ats	01/06/24	ats		
cis-1,2-Dichloroethene		<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Butyl Ethyl Ether		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	

CERTIFICATE OF ANALYSIS

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-15 Matrix: Solid Date Collected: 12/27/23 09:00
Sample ID: GP-14 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats	N	
Chloroform	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Cyclohexane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
Trichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Dibromomethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Bromodichloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Toluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Tetrachloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
2-Hexanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Dibromochloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Chlorobenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Ethylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
m,p-Xylene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
o-Xylene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Xylenes, total	<150	ug/kg dry	150	50	01/05/24	ats	01/06/24	ats		
Styrene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Bromoform	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Isopropylbenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-15 Matrix: Solid Date Collected: 12/27/23 09:00
Sample ID: GP-14 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
Bromobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Propylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Butylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Hexachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
Naphthalene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats	N	
Surrogates:										
1,2-Dichloroethane-d4	101	%	68-133	50	01/05/24	ats	01/06/24	ats		
Toluene-d8	108	%	75-120	50	01/05/24	ats	01/06/24	ats		
4-Bromofluorobenzene	102	%	69-119	50	01/05/24	ats	01/06/24	ats		
1,2-Dichlorobenzene-d4	103	%	72-127	50	01/05/24	ats	01/06/24	ats		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**85**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-16 Matrix: Solid Date Collected: 12/27/23 09:45
Sample ID: GP-15 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	<2.0	mg/kg dry	2.0	10	01/03/24	fs	01/04/24	acs		
Barium	**23**	**mg/kg dry**	**8.4**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	**4.7**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**5.6**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	<10	mg/kg dry	10	10	01/03/24	fs	01/04/24	acs		
Selenium	<0.50	mg/kg dry	0.50	10	01/03/24	fs	01/04/24	acs		
Silver	<0.42	mg/kg dry	0.42	10	01/03/24	fs	01/04/24	acs		
Zinc	**16**	**mg/kg dry**	**4.2**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145683										
Naphthalene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
2-Methylnaphthalene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Acenaphthylene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Acenaphthene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Fluorene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Phenanthrene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm	105	
Anthracene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Fluoranthene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Pyrene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Benzo (a) anthracene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Chrysene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Benzo (b) fluoranthene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Benzo (k) fluoranthene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-16 Matrix: Solid Date Collected: 12/27/23 09:45
Sample ID: GP-15 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Benzo (a) pyrene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Surrogates:										
Nitrobenzene-d5	73	%	36-98	1	01/03/24	kbc	01/09/24	drm		
2-Fluorobiphenyl	80	%	44-105	1	01/03/24	kbc	01/09/24	drm	N	
Terphenyl-d14	74	%	46-109	1	01/03/24	kbc	01/09/24	drm		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145827										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Chloromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Vinyl chloride	<40	ug/kg dry	40	50	01/05/24	ats	01/06/24	ats		
Bromomethane	<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats		
Chloroethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Diethyl ether	<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Acetone	<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats		
Iodomethane	<110	ug/kg dry	110	50	01/05/24	ats	01/06/24	ats	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methylene chloride	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Acrylonitrile	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Butanone	<750	ug/kg dry	750	50	01/05/24	ats	01/06/24	ats		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-16 Matrix: Solid Date Collected: 12/27/23 09:45
Sample ID: GP-15 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats	N	
Chloroform	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Cyclohexane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
Trichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Dibromomethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Bromodichloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Toluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Tetrachloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
2-Hexanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Dibromochloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Chlorobenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Ethylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
m,p-Xylene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
o-Xylene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Xylenes, total	<150	ug/kg dry	150	50	01/05/24	ats	01/06/24	ats		
Styrene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Bromoform	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Isopropylbenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-16 Matrix: Solid Date Collected: 12/27/23 09:45
Sample ID: GP-15 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
Bromobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Propylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Butylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Hexachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
Naphthalene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats	N	
Surrogates:										
1,2-Dichloroethane-d4	102	%	68-133	50	01/05/24	ats	01/06/24	ats		
Toluene-d8	102	%	75-120	50	01/05/24	ats	01/06/24	ats		
4-Bromofluorobenzene	107	%	69-119	50	01/05/24	ats	01/06/24	ats		
1,2-Dichlorobenzene-d4	100	%	72-127	50	01/05/24	ats	01/06/24	ats		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145687										
% Solids	**93**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-17 Matrix: Solid Date Collected: 12/27/23 10:20
Sample ID: GP-16 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	**0.086**	**mg/kg dry**	**0.050**	**1**	**01/04/24**	**fs**	**01/05/24**	**jma**		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	**4.4**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**95**	**mg/kg dry**	**9.4**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	**10**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**14**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	**35**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Selenium	**1.3**	**mg/kg dry**	**0.57**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.47	mg/kg dry	0.47	10	01/03/24	fs	01/04/24	acs		
Zinc	**59**	**mg/kg dry**	**4.7**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145683										
Naphthalene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
2-Methylnaphthalene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Acenaphthylene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Acenaphthene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Fluorene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Phenanthrene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm	105	
Anthracene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Fluoranthene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Pyrene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Benzo (a) anthracene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Chrysene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Benzo (b) fluoranthene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Benzo (k) fluoranthene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-17 Matrix: Solid Date Collected: 12/27/23 10:20
Sample ID: GP-16 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Benzo (a) pyrene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Surrogates:										
Nitrobenzene-d5	68	%	36-98	1	01/03/24	kbc	01/09/24	drm		
2-Fluorobiphenyl	63	%	44-105	1	01/03/24	kbc	01/09/24	drm	N	
Terphenyl-d14	67	%	46-109	1	01/03/24	kbc	01/09/24	drm		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145827										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Chloromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Vinyl chloride	<40	ug/kg dry	40	50	01/05/24	ats	01/06/24	ats		
Bromomethane	<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats		
Chloroethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Diethyl ether	<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Acetone	<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats		
Iodomethane	<130	ug/kg dry	130	50	01/05/24	ats	01/06/24	ats	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methylene chloride	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Acrylonitrile	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Butanone	<750	ug/kg dry	750	50	01/05/24	ats	01/06/24	ats		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-17 Matrix: Solid Date Collected: 12/27/23 10:20
Sample ID: GP-16 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Bromochloromethane	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Tetrahydrofuran	<1000 ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats	N	
Chloroform	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1-Trichloroethane	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Carbon tetrachloride	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Benzene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Amyl Methyl Ether	<250 ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichloroethane	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Cyclohexane	**920 ug/kg dry**	**250**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**	**N**	
Trichloroethene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2-Dichloropropane	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Dibromomethane	<250 ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Bromodichloromethane	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
cis-1,3-Dichloropropene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
4-Methyl-2-pentanone	<2500 ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Toluene	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,3-Dichloropropene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,2-Trichloroethane	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Tetrachloroethene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
2-Hexanone	<2500 ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Dibromochloromethane	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromoethane (EDB)	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Chlorobenzene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1,2-Tetrachloroethane	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Ethylbenzene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
m,p-Xylene	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
o-Xylene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Xylenes, total	<150 ug/kg dry	150	50	01/05/24	ats	01/06/24	ats		
Styrene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Bromoform	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Isopropylbenzene	<250 ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
1,1,2,2-Tetrachloroethane	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichloropropane	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-17 Matrix: Solid Date Collected: 12/27/23 10:20
Sample ID: GP-16 (3') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
Bromobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Propylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
sec-Butylbenzene	**57**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Butylbenzene	**55**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Hexachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
Naphthalene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats	N	
Surrogates:										
1,2-Dichloroethane-d4	99	%	68-133	50	01/05/24	ats	01/06/24	ats		
Toluene-d8	108	%	75-120	50	01/05/24	ats	01/06/24	ats		
4-Bromofluorobenzene	105	%	69-119	50	01/05/24	ats	01/06/24	ats		
1,2-Dichlorobenzene-d4	100	%	72-127	50	01/05/24	ats	01/06/24	ats		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145734										
% Solids	**86**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-18 Matrix: Solid Date Collected: 12/27/23 11:00
Sample ID: GP-17 (4') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	**0.12**	**mg/kg dry**	**0.050**	**1**	**01/04/24**	**fs**	**01/05/24**	**jma**		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	**3.8**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/09/24**	**acs**		
Barium	**65**	**mg/kg dry**	**8.8**	**10**	**01/03/24**	**fs**	**01/09/24**	**acs**		
Cadmium	**0.36**	**mg/kg dry**	**0.20**	**10**	**01/03/24**	**fs**	**01/09/24**	**acs**		
Chromium	**13**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/09/24**	**acs**		
Copper	**21**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/09/24**	**acs**		
Lead	**120**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/09/24**	**acs**		
Selenium	**1.4**	**mg/kg dry**	**0.53**	**10**	**01/03/24**	**fs**	**01/09/24**	**acs**		
Silver	<0.44	mg/kg dry	0.44	10	01/03/24	fs	01/09/24	acs		
Zinc	**110**	**mg/kg dry**	**4.4**	**10**	**01/03/24**	**fs**	**01/09/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									407	
Analysis Method: EPA 8270E										
Batch: T145683										
Naphthalene	<480	ug/kg dry	480	5	01/03/24	kbc	01/09/24	drm		
2-Methylnaphthalene	**2000**	**ug/kg dry**	**1200**	**5**	**01/03/24**	**kbc**	**01/09/24**	**drm**		
Acenaphthylene	<480	ug/kg dry	480	5	01/03/24	kbc	01/09/24	drm		
Acenaphthene	<480	ug/kg dry	480	5	01/03/24	kbc	01/09/24	drm		
Fluorene	<480	ug/kg dry	480	5	01/03/24	kbc	01/09/24	drm		
Phenanthrene	<330	ug/kg dry	330	5	01/03/24	kbc	01/09/24	drm	105	
Anthracene	<480	ug/kg dry	480	5	01/03/24	kbc	01/09/24	drm		
Fluoranthene	<330	ug/kg dry	330	5	01/03/24	kbc	01/09/24	drm		
Pyrene	<480	ug/kg dry	480	5	01/03/24	kbc	01/09/24	drm		
Benzo (a) anthracene	<330	ug/kg dry	330	5	01/03/24	kbc	01/09/24	drm		
Chrysene	<330	ug/kg dry	330	5	01/03/24	kbc	01/09/24	drm		
Benzo (b) fluoranthene	<330	ug/kg dry	330	5	01/03/24	kbc	01/09/24	drm		
Benzo (k) fluoranthene	<330	ug/kg dry	330	5	01/03/24	kbc	01/09/24	drm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-18 Matrix: Solid Date Collected: 12/27/23 11:00
Sample ID: GP-17 (4') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									407	
Benzo (a) pyrene	<330	ug/kg dry	330	5	01/03/24	kbc	01/09/24	drm		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	5	01/03/24	kbc	01/09/24	drm		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	5	01/03/24	kbc	01/09/24	drm		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	5	01/03/24	kbc	01/09/24	drm		
Surrogates:										
Nitrobenzene-d5	74	%	36-98	5	01/03/24	kbc	01/09/24	drm		
2-Fluorobiphenyl	66	%	44-105	5	01/03/24	kbc	01/09/24	drm	N	
Terphenyl-d14	74	%	46-109	5	01/03/24	kbc	01/09/24	drm		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145827										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Chloromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Vinyl chloride	<40	ug/kg dry	40	50	01/05/24	ats	01/06/24	ats		
Bromomethane	<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats		
Chloroethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Diethyl ether	<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Acetone	<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats		
Iodomethane	<150	ug/kg dry	150	50	01/05/24	ats	01/06/24	ats	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methylene chloride	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Acrylonitrile	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Butanone	<750	ug/kg dry	750	50	01/05/24	ats	01/06/24	ats		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-18 Matrix: Solid Date Collected: 12/27/23 11:00
Sample ID: GP-17 (4') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats	N	
Chloroform	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Cyclohexane	**12000**	**ug/kg dry**	**580**	**200**	**01/08/24**	**ats**	**01/08/24**	**ats**	**N**	
Trichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Dibromomethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Bromodichloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Toluene	**140**	**ug/kg dry**	**100**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Tetrachloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
2-Hexanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Dibromochloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Chlorobenzene	**51**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Ethylbenzene	**88**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
m,p-Xylene	**430**	**ug/kg dry**	**100**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
o-Xylene	**120**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
Xylenes, total	**550**	**ug/kg dry**	**150**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
Styrene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Bromoform	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Isopropylbenzene	**810**	**ug/kg dry**	**250**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-18 Matrix: Solid Date Collected: 12/27/23 11:00
Sample ID: GP-17 (4') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
Bromobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Propylbenzene	**540**	**ug/kg dry**	**100**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,3,5-Trimethylbenzene	**280**	**ug/kg dry**	**100**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
t-Butyl Benzene	**68**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,2,4-Trimethylbenzene	**120**	**ug/kg dry**	**100**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
sec-Butylbenzene	**640**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Butylbenzene	**820**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,2,3-Trimethylbenzene	**160**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**	**N**	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Hexachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
Naphthalene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Methylnaphthalene	**2500**	**ug/kg dry**	**330**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**	**N**	
Surrogates:										
1,2-Dichloroethane-d4	97	%	68-133	50	01/05/24	ats	01/06/24	ats		
1,2-Dichloroethane-d4	94	%	68-133	200	01/08/24	ats	01/08/24	ats		
Toluene-d8	105	%	75-120	50	01/05/24	ats	01/06/24	ats		
Toluene-d8	106	%	75-120	200	01/08/24	ats	01/08/24	ats		
4-Bromofluorobenzene	105	%	69-119	50	01/05/24	ats	01/06/24	ats		
4-Bromofluorobenzene	97	%	69-119	200	01/08/24	ats	01/08/24	ats		
1,2-Dichlorobenzene-d4	98	%	72-127	50	01/05/24	ats	01/06/24	ats		
1,2-Dichlorobenzene-d4	98	%	72-127	200	01/08/24	ats	01/08/24	ats		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145734										
% Solids	**87**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-18 Matrix: Solid Date Collected: 12/27/23 11:00
Sample ID: GP-17 (4') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL

WET CHEMISTRY

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-19 Matrix: Solid Date Collected: 12/27/23 11:30
Sample ID: GP-18 (5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	**0.11**	**mg/kg dry**	**0.050**	**1**	**01/04/24**	**fs**	**01/05/24**	**jma**		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	<2.0	mg/kg dry	2.0	10	01/03/24	fs	01/04/24	acs		
Barium	**160**	**mg/kg dry**	**9.8**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	**0.26**	**mg/kg dry**	**0.20**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Chromium	**18**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**16**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	**32**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Selenium	**4.2**	**mg/kg dry**	**0.59**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.49	mg/kg dry	0.49	10	01/03/24	fs	01/04/24	acs		
Zinc	**67**	**mg/kg dry**	**4.9**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145683										
Naphthalene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
2-Methylnaphthalene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Acenaphthylene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Acenaphthene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Fluorene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Phenanthrene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm	105	
Anthracene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Fluoranthene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Pyrene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Benzo (a) anthracene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Chrysene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Benzo (b) fluoranthene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Benzo (k) fluoranthene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-19 Matrix: Solid Date Collected: 12/27/23 11:30
Sample ID: GP-18 (5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Benzo (a) pyrene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	1	01/03/24	kbc	01/09/24	drm		
Surrogates:										
Nitrobenzene-d5	75	%	36-98	1	01/03/24	kbc	01/09/24	drm		
2-Fluorobiphenyl	75	%	44-105	1	01/03/24	kbc	01/09/24	drm	N	
Terphenyl-d14	80	%	46-109	1	01/03/24	kbc	01/09/24	drm		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145827										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Chloromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Vinyl chloride	<40	ug/kg dry	40	50	01/05/24	ats	01/06/24	ats		
Bromomethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Chloroethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Diethyl ether	<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Acetone	<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats		
Iodomethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methylene chloride	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Acrylonitrile	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Butanone	<750	ug/kg dry	750	50	01/05/24	ats	01/06/24	ats		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-19 Matrix: Solid Date Collected: 12/27/23 11:30
Sample ID: GP-18 (5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats	N	
Chloroform	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Cyclohexane	**340**	**ug/kg dry**	**250**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**	**N**	
Trichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Dibromomethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Bromodichloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Toluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Tetrachloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
2-Hexanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Dibromochloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Chlorobenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Ethylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
m,p-Xylene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
o-Xylene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Xylenes, total	<150	ug/kg dry	150	50	01/05/24	ats	01/06/24	ats		
Styrene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Bromoform	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Isopropylbenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-19 Matrix: Solid Date Collected: 12/27/23 11:30
Sample ID: GP-18 (5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
Bromobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Propylbenzene	**110**	**ug/kg dry**	**100**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
sec-Butylbenzene	**70**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Butylbenzene	**70**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Hexachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
Naphthalene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Methylnaphthalene	**820**	**ug/kg dry**	**330**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**	**N**	
Surrogates:										
1,2-Dichloroethane-d4	95	%	68-133	50	01/05/24	ats	01/06/24	ats		
Toluene-d8	105	%	75-120	50	01/05/24	ats	01/06/24	ats		
4-Bromofluorobenzene	96	%	69-119	50	01/05/24	ats	01/06/24	ats		
1,2-Dichlorobenzene-d4	100	%	72-127	50	01/05/24	ats	01/06/24	ats		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145734										
% Solids	**68**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-20 Matrix: Solid Date Collected: 12/27/23 13:30
Sample ID: GP-19 (5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145689										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145692										
Arsenic	**2.0**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**17**	**mg/kg dry**	**9.4**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	**5.2**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**4.0**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	<10	mg/kg dry	10	10	01/03/24	fs	01/04/24	acs		
Selenium	**0.84**	**mg/kg dry**	**0.57**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.47	mg/kg dry	0.47	10	01/03/24	fs	01/04/24	acs		
Zinc	**8.6**	**mg/kg dry**	**4.7**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									404	
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<1800	ug/kg dry	1800	20	01/02/24	kbc	01/03/24	drm		
2-Methylnaphthalene	**10000**	**ug/kg dry**	**4600**	**20**	**01/02/24**	**kbc**	**01/03/24**	**drm**		
Acenaphthylene	<1800	ug/kg dry	1800	20	01/02/24	kbc	01/03/24	drm		
Acenaphthene	**7700**	**ug/kg dry**	**1800**	**20**	**01/02/24**	**kbc**	**01/03/24**	**drm**		
Fluorene	**13000**	**ug/kg dry**	**1800**	**20**	**01/02/24**	**kbc**	**01/03/24**	**drm**		
Phenanthrene	**34000**	**ug/kg dry**	**730**	**20**	**01/02/24**	**kbc**	**01/03/24**	**drm**		
Anthracene	**3100**	**ug/kg dry**	**1800**	**20**	**01/02/24**	**kbc**	**01/03/24**	**drm**		
Fluoranthene	**1300**	**ug/kg dry**	**730**	**20**	**01/02/24**	**kbc**	**01/03/24**	**drm**		
Pyrene	<1800	ug/kg dry	1800	20	01/02/24	kbc	01/03/24	drm		
Benzo (a) anthracene	<730	ug/kg dry	730	20	01/02/24	kbc	01/03/24	drm		
Chrysene	<730	ug/kg dry	730	20	01/02/24	kbc	01/03/24	drm		
Benzo (b) fluoranthene	<730	ug/kg dry	730	20	01/02/24	kbc	01/03/24	drm		
Benzo (k) fluoranthene	<730	ug/kg dry	730	20	01/02/24	kbc	01/03/24	drm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-20 Matrix: Solid Date Collected: 12/27/23 13:30
Sample ID: GP-19 (5') Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										404	
Benzo (a) pyrene		<730	ug/kg dry	730	20	01/02/24	kbc	01/03/24	drm		
Indeno (1,2,3-cd) pyrene		<730	ug/kg dry	730	20	01/02/24	kbc	01/03/24	drm		
Dibenz (a,h) anthracene		<730	ug/kg dry	730	20	01/02/24	kbc	01/03/24	drm		
Benzo (g,h,i) perylene		<730	ug/kg dry	730	20	01/02/24	kbc	01/03/24	drm		
Surrogates:											
Nitrobenzene-d5	*		%	36-98	20	01/02/24	kbc	01/03/24	drm	302	
2-Fluorobiphenyl	*		%	44-105	20	01/02/24	kbc	01/03/24	drm	302, N	
Terphenyl-d14	*		%	46-109	20	01/02/24	kbc	01/03/24	drm	302	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145875											
Dichlorodifluoromethane		<250	ug/kg dry	250	50	01/08/24	ats	01/08/24	ats		
Chloromethane		<250	ug/kg dry	250	50	01/08/24	ats	01/08/24	ats		
Vinyl chloride		<40	ug/kg dry	40	50	01/08/24	ats	01/08/24	ats		
Bromomethane		<200	ug/kg dry	200	50	01/08/24	ats	01/08/24	ats		
Chloroethane		<250	ug/kg dry	250	50	01/08/24	ats	01/08/24	ats		
Trichlorofluoromethane		<100	ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
Diethyl ether		<200	ug/kg dry	200	50	01/08/24	ats	01/08/24	ats	N	
Tert-butyl alcohol		<2500	ug/kg dry	2500	50	01/08/24	ats	01/08/24	ats	N	
1,1-Dichloroethene		<50	ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
Acetone		<1000	ug/kg dry	1000	50	01/08/24	ats	01/08/24	ats		
Iodomethane		<100	ug/kg dry	100	50	01/08/24	ats	01/08/24	ats	N	
Carbon disulfide		<250	ug/kg dry	250	50	01/08/24	ats	01/08/24	ats		
Methyl-tert-butyl ether		<250	ug/kg dry	250	50	01/08/24	ats	01/08/24	ats		
Methylene chloride		<250	ug/kg dry	250	50	01/08/24	ats	01/08/24	ats		
Acrylonitrile		<100	ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
trans-1,2-Dichloroethene		<50	ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
1,1-Dichloroethane		<50	ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
Diisopropyl Ether		<250	ug/kg dry	250	50	01/08/24	ats	01/08/24	ats		
2-Butanone		<750	ug/kg dry	750	50	01/08/24	ats	01/08/24	ats		
cis-1,2-Dichloroethene		<50	ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
t-Butyl Ethyl Ether		<250	ug/kg dry	250	50	01/08/24	ats	01/08/24	ats	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-20 Matrix: Solid Date Collected: 12/27/23 13:30
Sample ID: GP-19 (5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Bromochloromethane	<100 ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
Tetrahydrofuran	<1000 ug/kg dry	1000	50	01/08/24	ats	01/08/24	ats	N	
Chloroform	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
1,1,1-Trichloroethane	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
Carbon tetrachloride	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
Benzene	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
t-Amyl Methyl Ether	<250 ug/kg dry	250	50	01/08/24	ats	01/08/24	ats	N	
1,2-Dichloroethane	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
Cyclohexane	<250 ug/kg dry	250	50	01/08/24	ats	01/08/24	ats	N	
Trichloroethene	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
1,2-Dichloropropane	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
Dibromomethane	<250 ug/kg dry	250	50	01/08/24	ats	01/08/24	ats		
Bromodichloromethane	<100 ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
cis-1,3-Dichloropropene	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
4-Methyl-2-pentanone	<2500 ug/kg dry	2500	50	01/08/24	ats	01/08/24	ats		
Toluene	<100 ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
trans-1,3-Dichloropropene	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
1,1,2-Trichloroethane	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
Tetrachloroethene	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
2-Hexanone	<2500 ug/kg dry	2500	50	01/08/24	ats	01/08/24	ats		
Dibromochloromethane	<100 ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
1,2-Dibromoethane (EDB)	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
Chlorobenzene	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
1,1,1,2-Tetrachloroethane	<100 ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
Ethylbenzene	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
m,p-Xylene	<100 ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
o-Xylene	**59 ug/kg dry**	**50**	**50**	**01/08/24**	**ats**	**01/08/24**	**ats**		
Xylenes, total	<150 ug/kg dry	150	50	01/08/24	ats	01/08/24	ats		
Styrene	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
Bromoform	<100 ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
Isopropylbenzene	**510 ug/kg dry**	**250**	**100**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,1,2,2-Tetrachloroethane	<50 ug/kg dry	50	50	01/08/24	ats	01/08/24	ats		
1,2,3-Trichloropropane	<100 ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-20 Matrix: Solid Date Collected: 12/27/23 13:30
Sample ID: GP-19 (5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/08/24	ats	01/08/24	ats	N	
Bromobenzene	<100	ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
n-Propylbenzene	**1400**	**ug/kg dry**	**100**	**100**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,3,5-Trimethylbenzene	**260**	**ug/kg dry**	**100**	**100**	**01/05/24**	**ats**	**01/06/24**	**ats**		
t-Butyl Benzene	**150**	**ug/kg dry**	**50**	**100**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
sec-Butylbenzene	**1500**	**ug/kg dry**	**50**	**100**	**01/05/24**	**ats**	**01/06/24**	**ats**		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
n-Butylbenzene	**3400**	**ug/kg dry**	**50**	**100**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,2,3-Trimethylbenzene	**300**	**ug/kg dry**	**50**	**100**	**01/05/24**	**ats**	**01/06/24**	**ats**	**N**	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
Hexachloroethane	<100	ug/kg dry	100	50	01/08/24	ats	01/08/24	ats		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/08/24	ats	01/08/24	ats		
Naphthalene	<330	ug/kg dry	330	50	01/08/24	ats	01/08/24	ats		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/08/24	ats	01/08/24	ats		
2-Methylnaphthalene	**7800**	**ug/kg dry**	**330**	**100**	**01/05/24**	**ats**	**01/06/24**	**ats**	**N**	
Surrogates:										
1,2-Dichloroethane-d4	94	%	68-133	100	01/05/24	ats	01/06/24	ats		
1,2-Dichloroethane-d4	99	%	68-133	50	01/08/24	ats	01/08/24	ats		
Toluene-d8	102	%	75-120	100	01/05/24	ats	01/06/24	ats		
Toluene-d8	104	%	75-120	50	01/08/24	ats	01/08/24	ats		
4-Bromofluorobenzene	100	%	69-119	100	01/05/24	ats	01/06/24	ats		
4-Bromofluorobenzene	100	%	69-119	50	01/08/24	ats	01/08/24	ats		
1,2-Dichlorobenzene-d4	97	%	72-127	100	01/05/24	ats	01/06/24	ats		
1,2-Dichlorobenzene-d4	96	%	72-127	50	01/08/24	ats	01/08/24	ats		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145734										
% Solids	**90**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-20 Matrix: Solid Date Collected: 12/27/23 13:30
Sample ID: GP-19 (5') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED BY	ANALYZED BY	NOTES	MCL

WET CHEMISTRY

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-21 Matrix: Solid Date Collected: 12/27/23 13:50
Sample ID: GP-20 (4') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145690										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145693										
Arsenic	<2.0	mg/kg dry	2.0	10	01/03/24	fs	01/04/24	acs		
Barium	**27**	**mg/kg dry**	**9.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	**6.1**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**4.1**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	<10	mg/kg dry	10	10	01/03/24	fs	01/04/24	acs		
Selenium	**0.65**	**mg/kg dry**	**0.54**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.45	mg/kg dry	0.45	10	01/03/24	fs	01/04/24	acs		
Zinc	**17**	**mg/kg dry**	**4.5**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
2-Methylnaphthalene	**3000**	**ug/kg dry**	**330**	**1**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
Acenaphthylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Acenaphthene	**680**	**ug/kg dry**	**330**	**1**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
Fluorene	**1000**	**ug/kg dry**	**330**	**1**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
Phenanthrene	**1900**	**ug/kg dry**	**330**	**1**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
Anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (a) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Chrysene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (b) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (k) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		

CERTIFICATE OF ANALYSIS

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-21 Matrix: Solid Date Collected: 12/27/23 13:50
Sample ID: GP-20 (4') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Benzo (a) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Surrogates:										
Nitrobenzene-d5	70	%	36-98	1	01/02/24	kbc	01/04/24	drm		
2-Fluorobiphenyl	58	%	44-105	1	01/02/24	kbc	01/04/24	drm	N	
Terphenyl-d14	51	%	46-109	1	01/02/24	kbc	01/04/24	drm		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145827										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Chloromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Vinyl chloride	<40	ug/kg dry	40	50	01/05/24	ats	01/06/24	ats		
Bromomethane	<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats		
Chloroethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Diethyl ether	<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Acetone	<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats		
Iodomethane	<120	ug/kg dry	120	50	01/05/24	ats	01/06/24	ats	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methylene chloride	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Acrylonitrile	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Butanone	<750	ug/kg dry	750	50	01/05/24	ats	01/06/24	ats		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-21 Matrix: Solid Date Collected: 12/27/23 13:50
Sample ID: GP-20 (4') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats	N	
Chloroform	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Cyclohexane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
Trichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Dibromomethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Bromodichloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Toluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Tetrachloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
2-Hexanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Dibromochloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Chlorobenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Ethylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
m,p-Xylene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
o-Xylene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Xylenes, total	<150	ug/kg dry	150	50	01/05/24	ats	01/06/24	ats		
Styrene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Bromoform	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Isopropylbenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-21 Matrix: Solid Date Collected: 12/27/23 13:50
Sample ID: GP-20 (4') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
Bromobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Propylbenzene	**240**	**ug/kg dry**	**100**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
sec-Butylbenzene	**430**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Butylbenzene	**660**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,2,3-Trimethylbenzene	**63**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**	**N**	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Hexachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
Naphthalene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Methylnaphthalene	**4200**	**ug/kg dry**	**330**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**	**N**	
Surrogates:										
1,2-Dichloroethane-d4	96	%	68-133	50	01/05/24	ats	01/06/24	ats		
Toluene-d8	100	%	75-120	50	01/05/24	ats	01/06/24	ats		
4-Bromofluorobenzene	105	%	69-119	50	01/05/24	ats	01/06/24	ats		
1,2-Dichlorobenzene-d4	99	%	72-127	50	01/05/24	ats	01/06/24	ats		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145734										
% Solids	**86**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-22 Matrix: Solid Date Collected: 12/27/23 13:50
Sample ID: GP-20 (4') Dup. Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145690										
Mercury	<0.050	mg/kg dry	0.050	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145693										
Arsenic	<2.0	mg/kg dry	2.0	10	01/03/24	fs	01/04/24	acs		
Barium	**40**	**mg/kg dry**	**8.9**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	**8.8**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**8.5**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	<10	mg/kg dry	10	10	01/03/24	fs	01/04/24	acs		
Selenium	**1.2**	**mg/kg dry**	**0.54**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.45	mg/kg dry	0.45	10	01/03/24	fs	01/04/24	acs		
Zinc	**37**	**mg/kg dry**	**4.5**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
2-Methylnaphthalene	**3100**	**ug/kg dry**	**330**	**1**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
Acenaphthylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Acenaphthene	**690**	**ug/kg dry**	**330**	**1**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
Fluorene	**1200**	**ug/kg dry**	**330**	**1**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
Phenanthrene	**2300**	**ug/kg dry**	**330**	**1**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
Anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (a) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Chrysene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (b) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (k) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-22 Matrix: Solid Date Collected: 12/27/23 13:50
Sample ID: GP-20 (4') Dup. Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Benzo (a) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Surrogates:										
Nitrobenzene-d5	83	%	36-98	1	01/02/24	kbc	01/04/24	drm		
2-Fluorobiphenyl	59	%	44-105	1	01/02/24	kbc	01/04/24	drm	N	
Terphenyl-d14	54	%	46-109	1	01/02/24	kbc	01/04/24	drm		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145827										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Chloromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Vinyl chloride	<40	ug/kg dry	40	50	01/05/24	ats	01/06/24	ats		
Bromomethane	<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats		
Chloroethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Diethyl ether	<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Acetone	<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats		
Iodomethane	<150	ug/kg dry	150	50	01/05/24	ats	01/06/24	ats	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methylene chloride	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Acrylonitrile	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Butanone	<750	ug/kg dry	750	50	01/05/24	ats	01/06/24	ats		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-22 Matrix: Solid Date Collected: 12/27/23 13:50
Sample ID: GP-20 (4') Dup. Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Tetrahydrofuran	<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats	N	
Chloroform	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Cyclohexane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
Trichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Dibromomethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Bromodichloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Toluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Tetrachloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
2-Hexanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Dibromochloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Chlorobenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Ethylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
m,p-Xylene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
o-Xylene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Xylenes, total	<150	ug/kg dry	150	50	01/05/24	ats	01/06/24	ats		
Styrene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Bromoform	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Isopropylbenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-22 Matrix: Solid Date Collected: 12/27/23 13:50
Sample ID: GP-20 (4') Dup. Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
Bromobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Propylbenzene	**270**	**ug/kg dry**	**100**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
t-Butyl Benzene	**79**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
sec-Butylbenzene	**790**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Butylbenzene	**1200**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,2,3-Trimethylbenzene	**92**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**	**N**	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Hexachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
Naphthalene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Methylnaphthalene	**2500**	**ug/kg dry**	**330**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**	**N**	
Surrogates:										
1,2-Dichloroethane-d4	96	%	68-133	50	01/05/24	ats	01/06/24	ats		
Toluene-d8	102	%	75-120	50	01/05/24	ats	01/06/24	ats		
4-Bromofluorobenzene	101	%	69-119	50	01/05/24	ats	01/06/24	ats		
1,2-Dichlorobenzene-d4	102	%	72-127	50	01/05/24	ats	01/06/24	ats		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145734										
% Solids	**86**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-23 Matrix: Solid Date Collected: 12/27/23 13:45
Sample ID: GP-20 (2') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145690										
Mercury	**0.070**	**mg/kg dry**	**0.050**	**1**	**01/04/24**	**fs**	**01/05/24**	**jma**		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145693										
Arsenic	**5.0**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**32**	**mg/kg dry**	**9.4**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	<0.20	mg/kg dry	0.20	10	01/03/24	fs	01/04/24	acs		
Chromium	**7.5**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**12**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	**28**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Selenium	**3.4**	**mg/kg dry**	**0.56**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.47	mg/kg dry	0.47	10	01/03/24	fs	01/04/24	acs		
Zinc	**42**	**mg/kg dry**	**4.7**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145734										
% Solids	**79**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-24 Matrix: Solid Date Collected: 12/27/23 15:00
Sample ID: GP-21 (2') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145690										
Mercury	**0.091**	**mg/kg dry**	**0.052**	**1**	**01/04/24**	**fs**	**01/05/24**	**jma**		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145693										
Arsenic	**5.5**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**47**	**mg/kg dry**	**8.6**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	**0.24**	**mg/kg dry**	**0.20**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Chromium	**9.0**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**16**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	**23**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Selenium	**5.0**	**mg/kg dry**	**0.51**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.43	mg/kg dry	0.43	10	01/03/24	fs	01/04/24	acs		
Zinc	**95**	**mg/kg dry**	**4.3**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	**330**	**ug/kg dry**	**330**	**1**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
2-Methylnaphthalene	**820**	**ug/kg dry**	**330**	**1**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
Acenaphthylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Acenaphthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Fluorene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Phenanthrene	**600**	**ug/kg dry**	**330**	**1**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
Anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (a) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Chrysene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (b) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (k) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-24 Matrix: Solid Date Collected: 12/27/23 15:00
Sample ID: GP-21 (2') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Benzo (a) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Surrogates:										
Nitrobenzene-d5	77	%	36-98	1	01/02/24	kbc	01/04/24	drm		
2-Fluorobiphenyl	56	%	44-105	1	01/02/24	kbc	01/04/24	drm	N	
Terphenyl-d14	57	%	46-109	1	01/02/24	kbc	01/04/24	drm		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145827										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Chloromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Vinyl chloride	<40	ug/kg dry	40	50	01/05/24	ats	01/06/24	ats		
Bromomethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Chloroethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Diethyl ether	<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Acetone	<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats		
Iodomethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methylene chloride	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Acrylonitrile	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Butanone	<760	ug/kg dry	760	50	01/05/24	ats	01/06/24	ats		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-24 Matrix: Solid Date Collected: 12/27/23 15:00
Sample ID: GP-21 (2') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Bromochloromethane	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Tetrahydrofuran	<1000 ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats	N	
Chloroform	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1-Trichloroethane	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Carbon tetrachloride	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Benzene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Amyl Methyl Ether	<250 ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichloroethane	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Cyclohexane	<250 ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
Trichloroethene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2-Dichloropropane	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Dibromomethane	<250 ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Bromodichloromethane	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
cis-1,3-Dichloropropene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
4-Methyl-2-pentanone	<2500 ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Toluene	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,3-Dichloropropene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,2-Trichloroethane	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Tetrachloroethene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
2-Hexanone	<2500 ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Dibromochloromethane	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromoethane (EDB)	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Chlorobenzene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1,2-Tetrachloroethane	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Ethylbenzene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
m,p-Xylene	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
o-Xylene	**74 ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
Xylenes, total	**150 ug/kg dry**	**150**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
Styrene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Bromoform	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Isopropylbenzene	<250 ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
1,1,2,2-Tetrachloroethane	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichloropropane	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-24 Matrix: Solid Date Collected: 12/27/23 15:00
Sample ID: GP-21 (2') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
Bromobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Propylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trimethylbenzene	**130**	**ug/kg dry**	**100**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
sec-Butylbenzene	**84**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Butylbenzene	**100**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,2,3-Trimethylbenzene	**78**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**	**N**	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Hexachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
Naphthalene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Methylnaphthalene	**810**	**ug/kg dry**	**330**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**	**N**	
Surrogates:										
1,2-Dichloroethane-d4	94	%	68-133	50	01/05/24	ats	01/06/24	ats		
Toluene-d8	106	%	75-120	50	01/05/24	ats	01/06/24	ats		
4-Bromofluorobenzene	97	%	69-119	50	01/05/24	ats	01/06/24	ats		
1,2-Dichlorobenzene-d4	99	%	72-127	50	01/05/24	ats	01/06/24	ats		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145734										
% Solids	**76**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-25 Matrix: Solid Date Collected: 12/27/23 14:20
Sample ID: GP-22 (2') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7471B										
Batch: T145690										
Mercury	<0.052	mg/kg dry	0.052	1	01/04/24	fs	01/05/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145693										
Arsenic	**170**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Barium	**39**	**mg/kg dry**	**9.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Cadmium	**0.93**	**mg/kg dry**	**0.20**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Chromium	**8.2**	**mg/kg dry**	**2.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Copper	**24**	**mg/kg dry**	**1.0**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Lead	**50**	**mg/kg dry**	**10**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Selenium	**3.4**	**mg/kg dry**	**0.54**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
Silver	<0.45	mg/kg dry	0.45	10	01/03/24	fs	01/04/24	acs		
Zinc	**230**	**mg/kg dry**	**4.5**	**10**	**01/03/24**	**fs**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
2-Methylnaphthalene	**350**	**ug/kg dry**	**330**	**1**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
Acenaphthylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Acenaphthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Fluorene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Phenanthrene	**540**	**ug/kg dry**	**330**	**1**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
Anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (a) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Chrysene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (b) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (k) fluoranthene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-25 Matrix: Solid Date Collected: 12/27/23 14:20
Sample ID: GP-22 (2') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Benzo (a) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Indeno (1,2,3-cd) pyrene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Dibenz (a,h) anthracene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Benzo (g,h,i) perylene	<330	ug/kg dry	330	1	01/02/24	kbc	01/04/24	drm		
Surrogates:										
Nitrobenzene-d5	77	%	36-98	1	01/02/24	kbc	01/04/24	drm		
2-Fluorobiphenyl	67	%	44-105	1	01/02/24	kbc	01/04/24	drm	N	
Terphenyl-d14	59	%	46-109	1	01/02/24	kbc	01/04/24	drm		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145827										
Dichlorodifluoromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Chloromethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Vinyl chloride	<40	ug/kg dry	40	50	01/05/24	ats	01/06/24	ats		
Bromomethane	<220	ug/kg dry	220	50	01/05/24	ats	01/06/24	ats		
Chloroethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Trichlorofluoromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Diethyl ether	<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats	N	
Tert-butyl alcohol	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats	N	
1,1-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Acetone	<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats		
Iodomethane	<220	ug/kg dry	220	50	01/05/24	ats	01/06/24	ats	N	
Carbon disulfide	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methyl-tert-butyl ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methylene chloride	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Acrylonitrile	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Diisopropyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Butanone	<750	ug/kg dry	750	50	01/05/24	ats	01/06/24	ats		
cis-1,2-Dichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Butyl Ethyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-25 Matrix: Solid Date Collected: 12/27/23 14:20
Sample ID: GP-22 (2') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Bromochloromethane	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Tetrahydrofuran	<1000 ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats	N	
Chloroform	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1-Trichloroethane	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Carbon tetrachloride	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Benzene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Amyl Methyl Ether	<250 ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichloroethane	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Cyclohexane	<250 ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
Trichloroethene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2-Dichloropropane	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Dibromomethane	<250 ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Bromodichloromethane	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
cis-1,3-Dichloropropene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
4-Methyl-2-pentanone	<2500 ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Toluene	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,3-Dichloropropene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,2-Trichloroethane	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Tetrachloroethene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
2-Hexanone	<2500 ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Dibromochloromethane	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromoethane (EDB)	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Chlorobenzene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1,2-Tetrachloroethane	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Ethylbenzene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
m,p-Xylene	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
o-Xylene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Xylenes, total	<150 ug/kg dry	150	50	01/05/24	ats	01/06/24	ats		
Styrene	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Bromoform	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Isopropylbenzene	<250 ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
1,1,2,2-Tetrachloroethane	<50 ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichloropropane	<100 ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-25 Matrix: Solid Date Collected: 12/27/23 14:20
Sample ID: GP-22 (2') Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
Bromobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Propylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Butylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Hexachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
Naphthalene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Methylnaphthalene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats	N	
Surrogates:										
1,2-Dichloroethane-d4	95	%	68-133	50	01/05/24	ats	01/06/24	ats		
Toluene-d8	103	%	75-120	50	01/05/24	ats	01/06/24	ats		
4-Bromofluorobenzene	103	%	69-119	50	01/05/24	ats	01/06/24	ats		
1,2-Dichlorobenzene-d4	103	%	72-127	50	01/05/24	ats	01/06/24	ats		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145734										
% Solids	**75**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-26 Matrix: Solid Date Collected: 12/26/23 16:50
Sample ID: Comp-1 (S) Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TCLP										
Analysis Method: EPA 6010D										
Batch: T145719										
Arsenic	<0.30	mg/L	0.30	1	01/03/24	lv	01/04/24	jma		5.0
Barium	<1.0	mg/L	1.0	1	01/03/24	lv	01/04/24	jma		100
Cadmium	<0.10	mg/L	0.10	1	01/03/24	lv	01/04/24	jma		1.0
Chromium	<0.50	mg/L	0.50	1	01/03/24	lv	01/04/24	jma		5.0
Copper	<0.50	mg/L	0.50	1	01/03/24	lv	01/04/24	jma		
Lead	<0.50	mg/L	0.50	1	01/03/24	lv	01/04/24	jma		5.0
Selenium	<0.60	mg/L	0.60	1	01/03/24	lv	01/04/24	jma		1.0
Silver	<0.10	mg/L	0.10	1	01/03/24	lv	01/04/24	jma		5.0
Zinc	<0.50	mg/L	0.50	1	01/03/24	lv	01/04/24	jma		
Analysis Method: EPA 7470A										
Batch: T145720										
Mercury	<0.010	mg/L	0.010	1	01/03/24	lv	01/04/24	jma		0.20
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									407	
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<1900	ug/kg dry	1900	20	01/02/24	kbc	01/04/24	drm		
2-Methylnaphthalene	<4800	ug/kg dry	4800	20	01/02/24	kbc	01/04/24	drm		
Acenaphthylene	<1900	ug/kg dry	1900	20	01/02/24	kbc	01/04/24	drm		
Acenaphthene	<1900	ug/kg dry	1900	20	01/02/24	kbc	01/04/24	drm		
Fluorene	<1900	ug/kg dry	1900	20	01/02/24	kbc	01/04/24	drm		
Phenanthrene	**1000**	**ug/kg dry**	**760**	**20**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
Anthracene	<1900	ug/kg dry	1900	20	01/02/24	kbc	01/04/24	drm		
Fluoranthene	**850**	**ug/kg dry**	**760**	**20**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
Pyrene	<1900	ug/kg dry	1900	20	01/02/24	kbc	01/04/24	drm		
Benzo (a) anthracene	<760	ug/kg dry	760	20	01/02/24	kbc	01/04/24	drm		
Chrysene	<760	ug/kg dry	760	20	01/02/24	kbc	01/04/24	drm		
Benzo (b) fluoranthene	<760	ug/kg dry	760	20	01/02/24	kbc	01/04/24	drm		
Benzo (k) fluoranthene	<760	ug/kg dry	760	20	01/02/24	kbc	01/04/24	drm		
Benzo (a) pyrene	<760	ug/kg dry	760	20	01/02/24	kbc	01/04/24	drm		
Indeno (1,2,3-cd) pyrene	<760	ug/kg dry	760	20	01/02/24	kbc	01/04/24	drm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-26 Matrix: Solid Date Collected: 12/26/23 16:50
Sample ID: Comp-1 (S) Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										407	
Dibenz (a,h) anthracene		<760	ug/kg dry	760	20	01/02/24	kbc	01/04/24	drm		
Benzo (g,h,i) perylene		<760	ug/kg dry	760	20	01/02/24	kbc	01/04/24	drm		
Surrogates:											
Nitrobenzene-d5	*		%	36-98	20	01/02/24	kbc	01/04/24	drm	302	
2-Fluorobiphenyl	*		%	44-105	20	01/02/24	kbc	01/04/24	drm	302, N	
Terphenyl-d14	*		%	46-109	20	01/02/24	kbc	01/04/24	drm	302	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145827											
Dichlorodifluoromethane		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Chloromethane		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Vinyl chloride		<40	ug/kg dry	40	50	01/05/24	ats	01/06/24	ats		
Bromomethane		<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats		
Chloroethane		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Trichlorofluoromethane		<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Diethyl ether		<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats	N	
Tert-butyl alcohol		<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats	N	
1,1-Dichloroethene		<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Acetone		<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats		
Iodomethane		<120	ug/kg dry	120	50	01/05/24	ats	01/06/24	ats	N	
Carbon disulfide		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methyl-tert-butyl ether		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methylene chloride		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Acrylonitrile		<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,2-Dichloroethene		<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1-Dichloroethane		<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Diisopropyl Ether		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Butanone		<750	ug/kg dry	750	50	01/05/24	ats	01/06/24	ats		
cis-1,2-Dichloroethene		<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Butyl Ethyl Ether		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
Bromochloromethane		<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Tetrahydrofuran		<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-26 Matrix: Solid Date Collected: 12/26/23 16:50
Sample ID: Comp-1 (S) Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Chloroform	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Cyclohexane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
Trichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Dibromomethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Bromodichloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Toluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Tetrachloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
2-Hexanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Dibromochloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Chlorobenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Ethylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
m,p-Xylene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
o-Xylene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Xylenes, total	<150	ug/kg dry	150	50	01/05/24	ats	01/06/24	ats		
Styrene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Bromoform	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Isopropylbenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
Bromobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-26 Matrix: Solid Date Collected: 12/26/23 16:50
Sample ID: Comp-1 (S) Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
n-Propylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
sec-Butylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Butylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Hexachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
Naphthalene	**650**	**ug/kg dry**	**330**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Methylnaphthalene	**490**	**ug/kg dry**	**330**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**	**N**	
Surrogates:										
1,2-Dichloroethane-d4	94	%	68-133	50	01/05/24	ats	01/06/24	ats		
Toluene-d8	107	%	75-120	50	01/05/24	ats	01/06/24	ats		
4-Bromofluorobenzene	94	%	69-119	50	01/05/24	ats	01/06/24	ats		
1,2-Dichlorobenzene-d4	102	%	72-127	50	01/05/24	ats	01/06/24	ats		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145734										
% Solids	**86**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		
Analysis Method: EPA 1010B										
Batch: T145971										
Flashpoint	> 200	°F	1.00	1	01/10/24	jlh	01/10/24	ans		
Analysis Method: EPA 9045D										
Batch: T145652										

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-26 Matrix: Solid Date Collected: 12/26/23 16:50
Sample ID: Comp-1 (S) Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
WET CHEMISTRY										
Corrosivity-pH	**8.51**			**1**	**01/02/24**	**ch**	**01/02/24**	**ch**		
pH measured at temperature (°C)	**21.0**			**1**	**01/02/24**	**ch**	**01/02/24**	**ch**		
Analysis Method: EPA Chapter 7.3										
Batch: T145636										
Cyanide, Reactive	<0.50	mg/kg dry	0.50	1	01/02/24	aeo	01/03/24	aeo	N	
Sulfide, Reactive	<5.0	mg/kg dry	5.0	1	01/02/24	aeo	01/03/24	aeo	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-27 Matrix: Solid Date Collected: 12/27/23 14:30
Sample ID: Comp-2 (S) Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TCLP										
Analysis Method: EPA 6010D										
Batch: T145719										
Arsenic	<0.30	mg/L	0.30	1	01/03/24	lv	01/04/24	jma		5.0
Barium	<1.0	mg/L	1.0	1	01/03/24	lv	01/04/24	jma		100
Cadmium	<0.10	mg/L	0.10	1	01/03/24	lv	01/04/24	jma		1.0
Chromium	<0.50	mg/L	0.50	1	01/03/24	lv	01/04/24	jma		5.0
Copper	<0.50	mg/L	0.50	1	01/03/24	lv	01/04/24	jma		
Lead	<0.50	mg/L	0.50	1	01/03/24	lv	01/04/24	jma		5.0
Selenium	<0.60	mg/L	0.60	1	01/03/24	lv	01/04/24	jma		1.0
Silver	<0.10	mg/L	0.10	1	01/03/24	lv	01/04/24	jma		5.0
Zinc	<0.50	mg/L	0.50	1	01/03/24	lv	01/04/24	jma		
Analysis Method: EPA 7470A										
Batch: T145720										
Mercury	<0.010	mg/L	0.010	1	01/03/24	lv	01/04/24	jma		0.20
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									407	
Analysis Method: EPA 8270E										
Batch: T145628										
Naphthalene	<1900	ug/kg dry	1900	20	01/02/24	kbc	01/04/24	drm		
2-Methylnaphthalene	<4900	ug/kg dry	4900	20	01/02/24	kbc	01/04/24	drm		
Acenaphthylene	<1900	ug/kg dry	1900	20	01/02/24	kbc	01/04/24	drm		
Acenaphthene	<1900	ug/kg dry	1900	20	01/02/24	kbc	01/04/24	drm		
Fluorene	<1900	ug/kg dry	1900	20	01/02/24	kbc	01/04/24	drm		
Phenanthrene	**990**	**ug/kg dry**	**770**	**20**	**01/02/24**	**kbc**	**01/04/24**	**drm**		
Anthracene	<1900	ug/kg dry	1900	20	01/02/24	kbc	01/04/24	drm		
Fluoranthene	<770	ug/kg dry	770	20	01/02/24	kbc	01/04/24	drm		
Pyrene	<1900	ug/kg dry	1900	20	01/02/24	kbc	01/04/24	drm		
Benzo (a) anthracene	<770	ug/kg dry	770	20	01/02/24	kbc	01/04/24	drm		
Chrysene	<770	ug/kg dry	770	20	01/02/24	kbc	01/04/24	drm		
Benzo (b) fluoranthene	<770	ug/kg dry	770	20	01/02/24	kbc	01/04/24	drm		
Benzo (k) fluoranthene	<770	ug/kg dry	770	20	01/02/24	kbc	01/04/24	drm		
Benzo (a) pyrene	<770	ug/kg dry	770	20	01/02/24	kbc	01/04/24	drm		
Indeno (1,2,3-cd) pyrene	<770	ug/kg dry	770	20	01/02/24	kbc	01/04/24	drm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-27 Matrix: Solid Date Collected: 12/27/23 14:30
Sample ID: Comp-2 (S) Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										407	
Dibenz (a,h) anthracene		<770	ug/kg dry	770	20	01/02/24	kbc	01/04/24	drm		
Benzo (g,h,i) perylene		<770	ug/kg dry	770	20	01/02/24	kbc	01/04/24	drm		
Surrogates:											
Nitrobenzene-d5	*		%	36-98	20	01/02/24	kbc	01/04/24	drm	302	
2-Fluorobiphenyl	*		%	44-105	20	01/02/24	kbc	01/04/24	drm	302, N	
Terphenyl-d14	*		%	46-109	20	01/02/24	kbc	01/04/24	drm	302	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145827											
Dichlorodifluoromethane		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Chloromethane		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Vinyl chloride		<40	ug/kg dry	40	50	01/05/24	ats	01/06/24	ats		
Bromomethane		<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats		
Chloroethane		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Trichlorofluoromethane		<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Diethyl ether		<200	ug/kg dry	200	50	01/05/24	ats	01/06/24	ats	N	
Tert-butyl alcohol		<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats	N	
1,1-Dichloroethene		<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Acetone		<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats		
Iodomethane		<120	ug/kg dry	120	50	01/05/24	ats	01/06/24	ats	N	
Carbon disulfide		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methyl-tert-butyl ether		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Methylene chloride		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Acrylonitrile		<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,2-Dichloroethene		<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1-Dichloroethane		<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Diisopropyl Ether		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Butanone		<750	ug/kg dry	750	50	01/05/24	ats	01/06/24	ats		
cis-1,2-Dichloroethene		<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Butyl Ethyl Ether		<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
Bromochloromethane		<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Tetrahydrofuran		<1000	ug/kg dry	1000	50	01/05/24	ats	01/06/24	ats	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-27 Matrix: Solid Date Collected: 12/27/23 14:30
Sample ID: Comp-2 (S) Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Chloroform	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Carbon tetrachloride	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
t-Amyl Methyl Ether	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Cyclohexane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats	N	
Trichloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2-Dichloropropane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Dibromomethane	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
Bromodichloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
cis-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
4-Methyl-2-pentanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Toluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,3-Dichloropropene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,2-Trichloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Tetrachloroethene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
2-Hexanone	<2500	ug/kg dry	2500	50	01/05/24	ats	01/06/24	ats		
Dibromochloromethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromoethane (EDB)	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Chlorobenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,1,1,2-Tetrachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Ethylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
m,p-Xylene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
o-Xylene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Xylenes, total	<150	ug/kg dry	150	50	01/05/24	ats	01/06/24	ats		
Styrene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
Bromoform	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Isopropylbenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
1,1,2,2-Tetrachloroethane	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
trans-1,4-Dichloro-2-butene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
Bromobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-27 Matrix: Solid Date Collected: 12/27/23 14:30
Sample ID: Comp-2 (S) Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
n-Propylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3,5-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
t-Butyl Benzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trimethylbenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
sec-Butylbenzene	**64**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
p-Isopropyltoluene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,3-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,4-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
n-Butylbenzene	**100**	**ug/kg dry**	**50**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**		
1,2,3-Trimethylbenzene	<50	ug/kg dry	50	50	01/05/24	ats	01/06/24	ats	N	
1,2-Dichlorobenzene	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2-Dibromo-3-chloropropane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
Hexachloroethane	<100	ug/kg dry	100	50	01/05/24	ats	01/06/24	ats		
1,2,4-Trichlorobenzene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
Naphthalene	<330	ug/kg dry	330	50	01/05/24	ats	01/06/24	ats		
1,2,3-Trichlorobenzene	<250	ug/kg dry	250	50	01/05/24	ats	01/06/24	ats		
2-Methylnaphthalene	**1300**	**ug/kg dry**	**330**	**50**	**01/05/24**	**ats**	**01/06/24**	**ats**	**N**	
Surrogates:										
1,2-Dichloroethane-d4	95	%	68-133	50	01/05/24	ats	01/06/24	ats		
Toluene-d8	101	%	75-120	50	01/05/24	ats	01/06/24	ats		
4-Bromofluorobenzene	99	%	69-119	50	01/05/24	ats	01/06/24	ats		
1,2-Dichlorobenzene-d4	98	%	72-127	50	01/05/24	ats	01/06/24	ats		
WET CHEMISTRY										
Analysis Method: ASTM D2974-07a										
Batch: T145734										
% Solids	**85**	**% by Wt.**	**0.10**	**1**	**01/03/24**	**mr**	**01/03/24**	**mr**		
Analysis Method: EPA 1010B										
Batch: T145971										
Flashpoint	> 200	°F	1.00	1	01/10/24	jlh	01/10/24	ans		
Analysis Method: EPA 9045D										
Batch: T145652										

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ANALYTICAL RESULTS

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Client Project ID: 1160 Broad St. St. Jospeh MI

Trace ID: 23L1358-27 Matrix: Solid Date Collected: 12/27/23 14:30
Sample ID: Comp-2 (S) Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
WET CHEMISTRY										
Corrosivity-pH	**8.47**			**1**	**01/02/24**	**ch**	**01/02/24**	**ch**		
pH measured at temperature (°C)	**21.5**			**1**	**01/02/24**	**ch**	**01/02/24**	**ch**		
Analysis Method: EPA Chapter 7.3										
Batch: T145636										
Cyanide, Reactive	<0.50	mg/kg dry	0.50	1	01/02/24	aeo	01/03/24	aeo	N	
Sulfide, Reactive	<5.0	mg/kg dry	5.0	1	01/02/24	aeo	01/03/24	aeo	N	

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QUALITY CONTROL RESULTS

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145689
QC Batch Method: EPA 7471B Prep
Analysis Description: Mercury, Total, EPA 7470/7471
Analysis Method: EPA 7471B

METHOD BLANK: T145689-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	mg/kg wet	<0.050	0.050	

LABORATORY CONTROL SAMPLE: T145689-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Mercury	mg/kg wet	0.800	0.822	103	80-120	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T145689-MSD1

Original: **23L1358-01**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Mercury	**mg/kg dry**	**0.0199**	**0.651**	**0.672**	**<0.050**	**102**	**-0.5**	**80-120**	**202**	**20**	**238**

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145690
QC Batch Method: EPA 7471B Prep
Analysis Description: Mercury, Total, EPA 7470/7471
Analysis Method: EPA 7471B

METHOD BLANK: T145690-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	mg/kg wet	<0.050	0.050	

LABORATORY CONTROL SAMPLE: T145690-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Mercury	mg/kg wet	0.800	0.766	96	80-120	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T145690-MSD1

Original: **23L1358-21**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Mercury	mg/kg dry	0	0.795	0.755	0.774	97	97	80-120	0.5	20	

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Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145719
QC Batch Method: EPA 3015 Microwave Assisted Digestions for Liquids

Analysis Description: Chromium, TCLP
Analysis Method: EPA 6010D

METHOD BLANK: T145719-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Silver	mg/L	<0.10	0.10	
Arsenic	mg/L	<0.30	0.30	
Barium	mg/L	<1.0	1.0	
Cadmium	mg/L	<0.10	0.10	
Chromium	mg/L	<0.50	0.50	
Copper	mg/L	<0.50	0.50	
Lead	mg/L	<0.50	0.50	
Selenium	mg/L	<0.60	0.60	
Zinc	mg/L	<0.50	0.50	

METHOD BLANK: T145719-BLK2

Parameter	Units	Blank Result	Reporting Limit	Notes
Silver	mg/L	<0.10	0.10	
Arsenic	mg/L	<0.30	0.30	
Barium	mg/L	<1.0	1.0	
Cadmium	mg/L	<0.10	0.10	
Chromium	mg/L	<0.50	0.50	
Copper	mg/L	<0.50	0.50	
Lead	mg/L	<0.50	0.50	
Selenium	mg/L	<0.60	0.60	
Zinc	mg/L	<0.50	0.50	

LABORATORY CONTROL SAMPLE: T145719-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Silver	mg/L	0.0278	<0.10	88	80-120	
Arsenic	mg/L	0.0556	<0.30	104	80-120	
Barium	mg/L	0.889	<1.0	97	80-120	
Cadmium	mg/L	0.0278	<0.10	99	80-120	
Chromium	mg/L	0.0278	<0.50	105	80-120	
Copper	mg/L	0.889	0.924	104	80-120	
Lead	mg/L	0.0556	<0.50	98	80-120	
Selenium	mg/L	0.0556	<0.60	92	80-120	

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LABORATORY CONTROL SAMPLE: T145719-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Zinc	mg/L	0.889	0.922	104	80-120	

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145692
QC Batch Method: EPA 3051A Microwave Assisted Digestions for Solids
Analysis Description: Silver, Total
Analysis Method: EPA 6020B

METHOD BLANK: T145692-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Silver	mg/kg dry	<0.50	0.50	
Arsenic	mg/kg dry	<2.0	2.0	
Barium	mg/kg dry	<10	10	
Cadmium	mg/kg dry	<0.20	0.20	
Chromium	mg/kg dry	<2.0	2.0	
Copper	mg/kg dry	<1.0	1.0	
Lead	mg/kg dry	<10	10	
Selenium	mg/kg dry	<0.60	0.60	
Zinc	mg/kg dry	<5.0	5.0	

LABORATORY CONTROL SAMPLE: T145692-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Silver	mg/kg dry	5.00	4.40	88	80-120	
Arsenic	mg/kg dry	5.00	4.15	83	80-120	
Barium	mg/kg dry	40.0	33.0	82	80-120	
Cadmium	mg/kg dry	40.0	33.8	84	80-120	
Chromium	mg/kg dry	40.0	35.1	88	80-120	
Copper	mg/kg dry	40.0	33.3	83	80-120	
Lead	mg/kg dry	40.0	35.9	90	80-120	
Selenium	mg/kg dry	5.00	4.03	81	80-120	
Zinc	mg/kg dry	40.0	35.7	89	80-120	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T145692-MSD1 Original: **23L1358-01**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Silver	mg/kg dry	0	4.60	4.61	4.22	96	92	75-125	5	20	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T145692-MSD1 Original: **23L1358-01**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Arsenic	**mg/kg dry**	**4.65**	**4.60**	**7.63**	**6.44**	**62**	**39**	**75-125**	**46**	**20**	**229**
Barium	**mg/kg dry**	**60.2**	**36.8**	**131**	**63.9**	**186**	**10**	**75-125**	**179**	**20**	**229**
Cadmium	mg/kg dry	0.271	36.8	35.9	33.5	93	90	75-125	3	20	
Chromium	mg/kg dry	5.33	36.8	40.0	34.8	90	80	75-125	12	20	
Copper	**mg/kg dry**	**12.6**	**36.8**	**44.6**	**35.3**	**83**	**62**	**75-125**	**30**	**20**	**204**
Lead	**mg/kg dry**	**73.7**	**36.8**	**106**	**146**	**85**	**197**	**75-125**	**80**	**20**	**203**
Selenium	**mg/kg dry**	**1.68**	**4.60**	**6.01**	**4.41**	**90**	**59**	**75-125**	**41**	**20**	**204**
Zinc	**mg/kg dry**	**56.7**	**36.8**	**125**	**77.4**	**177**	**56**	**75-125**	**104**	**20**	**229**

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145693
QC Batch Method: EPA 3051A Microwave Assisted Digestions for Solids

Analysis Description: Arsenic, Total
Analysis Method: EPA 6020B

METHOD BLANK: T145693-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Silver	mg/kg dry	<0.50	0.50	
Arsenic	mg/kg dry	<2.0	2.0	
Barium	mg/kg dry	<10	10	
Cadmium	mg/kg dry	<0.20	0.20	
Chromium	mg/kg dry	<2.0	2.0	
Copper	mg/kg dry	<1.0	1.0	
Lead	mg/kg dry	<10	10	
Selenium	mg/kg dry	<0.60	0.60	
Zinc	mg/kg dry	<5.0	5.0	

LABORATORY CONTROL SAMPLE: T145693-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Silver	mg/kg dry	5.00	5.07	101	80-120	
Arsenic	mg/kg dry	5.00	4.81	96	80-120	
Barium	mg/kg dry	40.0	37.3	93	80-120	
Cadmium	mg/kg dry	40.0	39.2	98	80-120	
Chromium	mg/kg dry	40.0	39.8	100	80-120	
Copper	mg/kg dry	40.0	37.2	93	80-120	
Lead	mg/kg dry	40.0	41.4	104	80-120	
Selenium	mg/kg dry	5.00	4.62	92	80-120	

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LABORATORY CONTROL SAMPLE: T145693-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Zinc	mg/kg dry	40.0	41.3	103	80-120	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T145693-MSD1 Original: **23L1358-21**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Silver	mg/kg dry	0	4.48	4.70	4.46	100	100	75-125	0.7	20	
Arsenic	mg/kg dry	1.76	4.48	5.95	5.96	89	94	75-125	5	20	
Barium	mg/kg dry	26.9	35.8	62.5	62.0	95	98	75-125	3	20	
Cadmium	mg/kg dry	0	35.8	36.5	34.8	97	97	75-125	0.1	20	
Chromium	mg/kg dry	6.09	35.8	42.4	41.5	97	99	75-125	2	20	
Copper	mg/kg dry	4.13	35.8	36.7	36.1	87	89	75-125	3	20	
Lead	mg/kg dry	4.72	35.8	42.6	40.3	101	99	75-125	2	20	
Selenium	mg/kg dry	0.647	4.48	4.60	4.44	84	85	75-125	0.2	20	
Zinc	mg/kg dry	16.6	35.8	53.5	53.2	98	102	75-125	4	20	

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145720
QC Batch Method: EPA 7470A Prep
Analysis Description: Mercury, TCLP
Analysis Method: EPA 7470A

METHOD BLANK: T145720-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	mg/L	<0.010	0.010	

METHOD BLANK: T145720-BLK2

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	mg/L	<0.010	0.010	

LABORATORY CONTROL SAMPLE: T145720-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Mercury	mg/L	0.00200	<0.010	103	80-120	

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

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QC Batch: T145698
QC Batch Method: Leaching proceedures

Analysis Description: TCLP Extraction, Metals
Analysis Method: EPA 1311

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145628
QC Batch Method: EPA 3550C Ultrasonic Extraction

Analysis Description: PNAs
Analysis Method: EPA 8270E

METHOD BLANK: T145628-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Naphthalene	ug/kg wet	<330	330	
2-Methylnaphthalene	ug/kg wet	<330	330	
Acenaphthylene	ug/kg wet	<330	330	
Acenaphthene	ug/kg wet	<330	330	
Fluorene	ug/kg wet	<330	330	
Phenanthrene	ug/kg wet	<330	330	
Anthracene	ug/kg wet	<330	330	
Fluoranthene	ug/kg wet	<330	330	
Pyrene	ug/kg wet	<330	330	
Benzo (a) anthracene	ug/kg wet	<330	330	
Chrysene	ug/kg wet	<330	330	
Benzo (b) fluoranthene	ug/kg wet	<330	330	
Benzo (k) fluoranthene	ug/kg wet	<330	330	
Benzo (a) pyrene	ug/kg wet	<330	330	
Indeno (1,2,3-cd) pyrene	ug/kg wet	<330	330	
Dibenz (a,h) anthracene	ug/kg wet	<330	330	
Benzo (g,h,i) perylene	ug/kg wet	<330	330	
Nitrobenzene-d5 (S)	%	79	36-98	
2-Fluorobiphenyl (S)	%	72	44-105	
Terphenyl-d14 (S)	%	90	46-109	

LABORATORY CONTROL SAMPLE: T145628-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Naphthalene	ug/kg wet	3330	2170	65	59-91	
2-Methylnaphthalene	ug/kg wet	3330	2070	62	0-200	
Acenaphthylene	ug/kg wet	3330	2000	60	49-94	
Acenaphthene	ug/kg wet	3330	2020	61	52-105	
Fluorene	ug/kg wet	3330	2160	65	58-106	
Phenanthrene	ug/kg wet	3330	2180	65	61-108	
Anthracene	ug/kg wet	3330	2100	63	57-106	
Fluoranthene	ug/kg wet	3330	2450	73	54-129	
Pyrene	ug/kg wet	3330	2280	68	47-114	

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LABORATORY CONTROL SAMPLE: T145628-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Benzo (a) anthracene	ug/kg wet	3330	2380	71	58-114	
Chrysene	ug/kg wet	3330	2380	71	52-123	
Benzo (b) fluoranthene	ug/kg wet	3330	2230	67	47-142	
Benzo (k) fluoranthene	ug/kg wet	3330	2400	72	53-126	
Benzo (a) pyrene	ug/kg wet	3330	2490	75	56-121	
Indeno (1,2,3-cd) pyrene	ug/kg wet	3330	2240	67	51-123	
Dibenz (a,h) anthracene	ug/kg wet	3330	2230	67	52-131	
Benzo (g,h,i) perylene	ug/kg wet	3330	2230	67	45-116	
Nitrobenzene-d5 (S)	%	3330	2760	83	36-98	
2-Fluorobiphenyl (S)	%	3370	2610	78	44-105	
Terphenyl-d14 (S)	%	3330	2640	79	46-109	

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145683
QC Batch Method: EPA 3550C Ultrasonic Extraction
Analysis Description: PNAs
Analysis Method: EPA 8270E

METHOD BLANK: T145683-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Naphthalene	ug/kg wet	<330	330	
2-Methylnaphthalene	ug/kg wet	<330	330	
Acenaphthylene	ug/kg wet	<330	330	
Acenaphthene	ug/kg wet	<330	330	
Fluorene	ug/kg wet	<330	330	
Phenanthrene	ug/kg wet	<330	330	
Anthracene	ug/kg wet	<330	330	
Fluoranthene	ug/kg wet	<330	330	
Pyrene	ug/kg wet	<330	330	
Benzo (a) anthracene	ug/kg wet	<330	330	
Chrysene	ug/kg wet	<330	330	
Benzo (b) fluoranthene	ug/kg wet	<330	330	
Benzo (k) fluoranthene	ug/kg wet	<330	330	
Benzo (a) pyrene	ug/kg wet	<330	330	
Indeno (1,2,3-cd) pyrene	ug/kg wet	<330	330	
Dibenz (a,h) anthracene	ug/kg wet	<330	330	
Benzo (g,h,i) perylene	ug/kg wet	<330	330	
Nitrobenzene-d5 (S)	%	66	36-98	
2-Fluorobiphenyl (S)	%	76	44-105	
Terphenyl-d14 (S)	%	78	46-109	

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LABORATORY CONTROL SAMPLE: T145683-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Naphthalene	ug/kg wet	3330	2040	61	59-91	
2-Methylnaphthalene	ug/kg wet	3330	2150	64	0-200	
Acenaphthylene	ug/kg wet	3330	1920	58	49-94	
Acenaphthene	ug/kg wet	3330	2000	60	52-105	
Fluorene	ug/kg wet	3330	2130	64	58-106	
Phenanthrene	**ug/kg wet**	**3330**	**1950**	**58**	**61-108**	**105**
Anthracene	ug/kg wet	3330	1960	59	57-106	
Fluoranthene	ug/kg wet	3330	2080	62	54-129	
Pyrene	ug/kg wet	3330	2180	65	47-114	
Benzo (a) anthracene	ug/kg wet	3330	2110	63	58-114	
Chrysene	ug/kg wet	3330	2330	70	52-123	
Benzo (b) fluoranthene	ug/kg wet	3330	2250	68	47-142	
Benzo (k) fluoranthene	ug/kg wet	3330	2020	60	53-126	
Benzo (a) pyrene	ug/kg wet	3330	2200	66	56-121	
Indeno (1,2,3-cd) pyrene	ug/kg wet	3330	2290	69	51-123	
Dibenz (a,h) anthracene	ug/kg wet	3330	2270	68	52-131	
Benzo (g,h,i) perylene	ug/kg wet	3330	2290	69	45-116	
Nitrobenzene-d5 (S)	%	3330	2190	66	36-98	
2-Fluorobiphenyl (S)	%	3370	2170	64	44-105	
Terphenyl-d14 (S)	%	3330	2460	74	46-109	

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145743
QC Batch Method: EPA 5035A Purge-and-Trap for Solids and Wastes

Analysis Description: Volatiles, Full MDEQ+ List
Analysis Method: EPA 8260D

METHOD BLANK: T145743-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Dichlorodifluoromethane	ug/kg wet	<250	250	
Chloromethane	ug/kg wet	<250	250	
Vinyl chloride	ug/kg wet	<40	40	
Bromomethane	ug/kg wet	<250	250	
Chloroethane	ug/kg wet	<250	250	
Trichlorofluoromethane	ug/kg wet	<100	100	
Diethyl ether	ug/kg wet	<200	200	
Tert-butyl alcohol	ug/kg wet	<2500	2500	
1,1-Dichloroethene	ug/kg wet	<50	50	
Acetone	ug/kg wet	<1000	1000	
Iodomethane	ug/kg wet	<250	250	
Carbon disulfide	ug/kg wet	<250	250	

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METHOD BLANK: T145743-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Methyl-tert-butyl ether	ug/kg wet	<250	250	
Methylene chloride	ug/kg wet	<250	250	
Acrylonitrile	ug/kg wet	<100	100	
trans-1,2-Dichloroethene	ug/kg wet	<50	50	
1,1-Dichloroethane	ug/kg wet	<50	50	
Diisopropyl Ether	ug/kg wet	<250	250	
2-Butanone	ug/kg wet	<750	750	
cis-1,2-Dichloroethene	ug/kg wet	<50	50	
t-Butyl Ethyl Ether	ug/kg wet	<250	250	
Bromochloromethane	ug/kg wet	<100	100	
Tetrahydrofuran	ug/kg wet	<1000	1000	
Chloroform	ug/kg wet	<50	50	
1,1,1-Trichloroethane	ug/kg wet	<50	50	
Carbon tetrachloride	ug/kg wet	<50	50	
Benzene	ug/kg wet	<50	50	
t-Amyl Methyl Ether	ug/kg wet	<250	250	
1,2-Dichloroethane	ug/kg wet	<50	50	
Cyclohexane	ug/kg wet	<250	250	
Trichloroethene	ug/kg wet	<50	50	
1,2-Dichloropropane	ug/kg wet	<50	50	
Dibromomethane	ug/kg wet	<250	250	
Bromodichloromethane	ug/kg wet	<100	100	
cis-1,3-Dichloropropene	ug/kg wet	<50	50	
4-Methyl-2-pentanone	ug/kg wet	<2500	2500	
Toluene	ug/kg wet	<100	100	
trans-1,3-Dichloropropene	ug/kg wet	<50	50	
1,1,2-Trichloroethane	ug/kg wet	<50	50	
Tetrachloroethene	ug/kg wet	<50	50	
2-Hexanone	ug/kg wet	<2500	2500	
Dibromochloromethane	ug/kg wet	<100	100	
1,2-Dibromoethane (EDB)	ug/kg wet	<50	50	
Chlorobenzene	ug/kg wet	<50	50	
1,1,1,2-Tetrachloroethane	ug/kg wet	<100	100	
Ethylbenzene	ug/kg wet	<50	50	
m,p-Xylene	ug/kg wet	<100	100	
o-Xylene	ug/kg wet	<50	50	
Xylenes, total	ug/kg wet	<150	150	
Styrene	ug/kg wet	<50	50	
Bromoform	ug/kg wet	<100	100	
Isopropylbenzene	ug/kg wet	<250	250	
1,1,2,2-Tetrachloroethane	ug/kg wet	<50	50	
1,2,3-Trichloropropane	ug/kg wet	<100	100	
trans-1,4-Dichloro-2-butene	ug/kg wet	<50	50	
Bromobenzene	ug/kg wet	<100	100	

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METHOD BLANK: T145743-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
n-Propylbenzene	ug/kg wet	<100	100	
1,3,5-Trimethylbenzene	ug/kg wet	<100	100	
t-Butyl Benzene	ug/kg wet	<50	50	
1,2,4-Trimethylbenzene	ug/kg wet	<100	100	
sec-Butylbenzene	ug/kg wet	<50	50	
p-Isopropyltoluene	ug/kg wet	<100	100	
1,3-Dichlorobenzene	ug/kg wet	<100	100	
1,4-Dichlorobenzene	ug/kg wet	<100	100	
n-Butylbenzene	ug/kg wet	<50	50	
1,2,3-Trimethylbenzene	ug/kg wet	<50	50	
1,2-Dichlorobenzene	ug/kg wet	<100	100	
1,2-Dibromo-3-chloropropane	ug/kg wet	<100	100	
Hexachloroethane	ug/kg wet	<100	100	
1,2,4-Trichlorobenzene	ug/kg wet	<330	330	
Naphthalene	ug/kg wet	<330	330	
1,2,3-Trichlorobenzene	ug/kg wet	<250	250	
2-Methylnaphthalene	ug/kg wet	<330	330	
1,2-Dichloroethane-d4 (S)	%	94	68-133	
Toluene-d8 (S)	%	107	75-120	
4-Bromofluorobenzene (S)	%	98	69-119	
1,2-Dichlorobenzene-d4 (S)	%	103	72-127	

LABORATORY CONTROL SAMPLE: T145743-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Dichlorodifluoromethane	ug/kg wet	2500	2560	102	46-153	
Chloromethane	ug/kg wet	2500	2570	103	42-162	
Vinyl chloride	ug/kg wet	2500	2600	104	47-184	
Bromomethane	ug/kg wet	2500	2390	95	34-189	
Chloroethane	ug/kg wet	2500	2580	103	74-151	
Trichlorofluoromethane	ug/kg wet	2500	2340	94	71-172	
Diethyl ether	ug/kg wet	2500	2790	112	50-150	
Tert-butyl alcohol	ug/kg wet	12500	12100	96	50-150	
1,1-Dichloroethene	ug/kg wet	2500	2320	93	64-156	
Acetone	ug/kg wet	2500	3150	126	70-130	
Iodomethane	ug/kg wet	2500	2300	92	70-130	
Carbon disulfide	ug/kg wet	2500	2390	96	70-130	
Methyl-tert-butyl ether	ug/kg wet	2500	2640	106	50-150	
Methylene chloride	ug/kg wet	2500	2540	102	38-167	
Acrylonitrile	**ug/kg wet**	**2500**	**8460**	**339**	**50-150**	**112**
trans-1,2-Dichloroethene	ug/kg wet	2500	2570	103	62-142	
1,1-Dichloroethane	ug/kg wet	2500	2660	106	62-120	

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LABORATORY CONTROL SAMPLE: T145743-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Diisopropyl Ether	ug/kg wet	2500	2740	110	50-150	
2-Butanone	ug/kg wet	2500	2870	115	70-130	
cis-1,2-Dichloroethene	ug/kg wet	2500	2670	107	80-120	
t-Butyl Ethyl Ether	ug/kg wet	2500	2780	111	50-150	
Bromochloromethane	ug/kg wet	2500	2720	109	80-120	
Tetrahydrofuran	ug/kg wet	2500	2390	95	50-150	
Chloroform	ug/kg wet	2500	2450	98	80-120	
1,1,1-Trichloroethane	ug/kg wet	2500	2350	94	83-128	
Carbon tetrachloride	ug/kg wet	2500	2320	93	79-141	
Benzene	ug/kg wet	2500	2660	107	80-120	
t-Amyl Methyl Ether	ug/kg wet	2500	2520	101	50-150	
1,2-Dichloroethane	ug/kg wet	2500	2400	96	80-120	
Cyclohexane	ug/kg wet	2500	2380	95	50-150	
Trichloroethene	ug/kg wet	2500	2340	94	69-133	
1,2-Dichloropropane	ug/kg wet	2500	2700	108	80-120	
Dibromomethane	ug/kg wet	2500	2640	106	80-120	
Bromodichloromethane	ug/kg wet	2500	2480	99	80-120	
cis-1,3-Dichloropropene	ug/kg wet	2500	2560	102	73-121	
4-Methyl-2-pentanone	ug/kg wet	2500	2680	107	70-130	
Toluene	ug/kg wet	2500	2400	96	80-120	
trans-1,3-Dichloropropene	ug/kg wet	2500	2510	100	73-118	
1,1,2-Trichloroethane	ug/kg wet	2500	2620	105	80-120	
Tetrachloroethene	ug/kg wet	2500	2310	92	70-120	
2-Hexanone	ug/kg wet	2500	2550	102	70-130	
Dibromochloromethane	ug/kg wet	2500	2390	96	76-116	
1,2-Dibromoethane (EDB)	ug/kg wet	2500	2710	108	78-113	
Chlorobenzene	ug/kg wet	2500	2670	107	80-120	
1,1,1,2-Tetrachloroethane	ug/kg wet	2500	2400	96	77-120	
Ethylbenzene	ug/kg wet	2500	2410	96	78-120	
m,p-Xylene	ug/kg wet	5000	4900	98	78-122	
o-Xylene	ug/kg wet	2500	2460	98	78-122	
Xylenes, total	ug/kg wet	7500	7360	98	78-122	
Styrene	ug/kg wet	2500	2460	98	76-121	
Bromoform	ug/kg wet	2500	2340	94	71-115	
Isopropylbenzene	ug/kg wet	2500	2420	97	78-127	
1,1,2,2-Tetrachloroethane	ug/kg wet	2500	2820	113	81-124	
1,2,3-Trichloropropane	ug/kg wet	2500	2710	109	69-116	
trans-1,4-Dichloro-2-butene	ug/kg wet	2500	2890	116	50-150	
Bromobenzene	ug/kg wet	2500	2540	102	80-120	
n-Propylbenzene	ug/kg wet	2500	2520	101	76-123	
1,3,5-Trimethylbenzene	ug/kg wet	2500	2460	98	81-125	

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LABORATORY CONTROL SAMPLE: T145743-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
t-Butyl Benzene	ug/kg wet	2500	2420	97	72-129	
1,2,4-Trimethylbenzene	ug/kg wet	2500	2480	99	79-129	
sec-Butylbenzene	ug/kg wet	2500	2440	98	73-133	
p-Isopropyltoluene	ug/kg wet	2500	2360	94	76-129	
1,3-Dichlorobenzene	ug/kg wet	2500	2650	106	80-120	
1,4-Dichlorobenzene	ug/kg wet	2500	2530	101	80-120	
n-Butylbenzene	ug/kg wet	2500	2330	93	81-127	
1,2,3-Trimethylbenzene	ug/kg wet	2500	2420	97	50-150	
1,2-Dichlorobenzene	ug/kg wet	2500	2490	100	80-120	
1,2-Dibromo-3-chloropropane	ug/kg wet	2500	2190	87	58-123	
Hexachloroethane	ug/kg wet	2500	2490	100	50-150	
1,2,4-Trichlorobenzene	ug/kg wet	2500	2400	96	74-116	
Naphthalene	ug/kg wet	2500	2390	96	63-118	
1,2,3-Trichlorobenzene	ug/kg wet	2500	2390	96	74-114	
2-Methylnaphthalene	ug/kg wet	2500	2370	95	50-150	
1,2-Dichloroethane-d4 (S)	%	30.0	29.4	98	68-133	
Toluene-d8 (S)	%	30.0	29.9	100	75-120	
4-Bromofluorobenzene (S)	%	30.0	30.5	102	69-119	
1,2-Dichlorobenzene-d4 (S)	%	30.0	29.2	97	72-127	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T145743-MSD1 Original: **23L1358-01**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Dichlorodifluoromethane	ug/kg dry	0	1070	1210	1250	113	117	43-118	3	11	
Chloromethane	ug/kg dry	0	1070	1110	1070	104	100	46-133	3	11	
Vinyl chloride	ug/kg dry	0	1070	133	139	12	13	13-46	5	13	
Bromomethane	ug/kg dry	0	1070	817	899	76	84	48-132	10	13	
Chloroethane	ug/kg dry	0	1070	1030	1070	97	100	53-132	3	15	
Trichlorofluoromethane	ug/kg dry	10.5	1070	1050	1130	98	104	62-135	7	15	
Diethyl ether	ug/kg dry	0	1070	1120	1150	104	108	50-150	3	20	
Tert-butyl alcohol	ug/kg dry	0	5350	3250	3360	61	63	50-150	4	20	
1,1-Dichloroethene	ug/kg dry	0	1070	1070	1120	100	104	60-146	4	15	
Acetone	**ug/kg dry**	**0**	**1070**	**845**	**1680**	**79**	**157**	**60-140**	**66**	**39**	**230.6**
Iodomethane	ug/kg dry	0	1070	1030	1130	96	106	60-140	10	30	
Carbon disulfide	ug/kg dry	0	1070	1060	1150	99	108	60-140	8	19	
Methyl-tert-butyl ether	ug/kg dry	0	1070	1060	1110	100	104	50-150	4	20	
Methylene chloride	ug/kg dry	0	1070	1030	1100	96	103	39-120	7	32	
Acrylonitrile	**ug/kg dry**	**0**	**1070**	**3570**	**3650**	**334**	**341**	**50-150**	**2**	**20**	**230**
trans-1,2-Dichloroethene	ug/kg dry	0	1070	1140	1230	107	115	63-140	7	14	
1,1-Dichloroethane	ug/kg dry	0	1070	1150	1200	108	112	62-141	4	21	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T145743-MSD1 Original: **23L1358-01**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Diisopropyl Ether	ug/kg dry	0	1070	1140	1190	107	111	50-150	4	20	
2-Butanone	**ug/kg dry**	**0**	**1070**	**1030**	**1460**	**96**	**136**	**60-140**	**35**	**23**	**207**
cis-1,2-Dichloroethene	ug/kg dry	0	1070	1140	1190	107	111	50-153	4	15	
t-Butyl Ethyl Ether	ug/kg dry	0	1070	1140	1180	107	111	50-150	4	20	
Bromochloromethane	ug/kg dry	0	1070	1130	1180	105	111	62-121	5	16	
Tetrahydrofuran	ug/kg dry	0	1070	937	1030	88	96	50-150	9	20	
Chloroform	ug/kg dry	0	1070	1040	1090	97	102	68-124	4	13	
1,1,1-Trichloroethane	ug/kg dry	0	1070	1040	1120	98	105	70-125	7	11	
Carbon tetrachloride	ug/kg dry	0	1070	1050	1110	98	104	68-125	6	12	
Benzene	**ug/kg dry**	**0**	**1070**	**1150**	**1230**	**107**	**115**	**78-114**	**7**	**11**	**209**
t-Amyl Methyl Ether	ug/kg dry	6.30	1070	1050	1080	97	100	50-150	3	20	
1,2-Dichloroethane	ug/kg dry	0	1070	1020	1050	95	98	63-132	3	11	
Cyclohexane	ug/kg dry	17.4	1070	1110	1150	102	106	50-150	4	20	
Trichloroethene	ug/kg dry	0	1070	1040	1130	97	105	70-117	8	14	
1,2-Dichloropropane	ug/kg dry	0	1070	1140	1200	106	112	64-130	5	12	
Dibromomethane	ug/kg dry	0	1070	1080	1160	101	109	70-112	8	11	
Bromodichloromethane	ug/kg dry	0	1070	1040	1090	97	102	57-126	5	13	
cis-1,3-Dichloropropene	ug/kg dry	0	1070	1070	1130	100	106	68-111	6	10	
4-Methyl-2-pentanone	ug/kg dry	0	1070	1050	<2500	98	104	60-140	6	13	
Toluene	ug/kg dry	17.2	1070	1030	1130	95	104	77-118	10	10	
trans-1,3-Dichloropropene	ug/kg dry	6.30	1070	1030	1090	96	102	63-116	6	12	
1,1,2-Trichloroethane	ug/kg dry	0	1070	1070	1140	100	107	73-112	6	10	
Tetrachloroethene	ug/kg dry	126	1070	1130	1210	94	102	57-126	8	12	
2-Hexanone	**ug/kg dry**	**0**	**1070**	**909**	**<2500**	**85**	**106**	**60-140**	**22**	**13**	**207**
Dibromochloromethane	ug/kg dry	0	1070	961	1030	90	96	59-114	7	12	
1,2-Dibromoethane (EDB)	ug/kg dry	0	1070	1090	1180	102	110	69-111	8	12	
Chlorobenzene	ug/kg dry	0	1070	1110	1200	104	112	75-116	8	12	
1,1,1,2-Tetrachloroethane	ug/kg dry	0	1070	993	1060	93	99	62-118	6	12	
Ethylbenzene	ug/kg dry	0	1070	1030	1120	96	104	72-117	8	11	
m,p-Xylene	ug/kg dry	0	2140	2040	2210	96	103	68-119	8	12	
o-Xylene	ug/kg dry	16.6	1070	1010	1060	92	98	68-119	6	12	
Xylenes, total	ug/kg dry	0	3210	3060	2220	95	69	68-119	32	12	
Styrene	ug/kg dry	16.0	1070	959	1010	88	93	54-110	6	36	
Bromoform	ug/kg dry	0	1070	858	907	80	85	46-103	5	12	
Isopropylbenzene	ug/kg dry	0	1070	997	1030	93	96	75-120	3	12	
1,1,2,2-Tetrachloroethane	ug/kg dry	0	1070	1030	1060	96	99	70-117	3	11	
1,2,3-Trichloropropane	ug/kg dry	0	1070	1010	1060	94	99	49-121	5	12	
trans-1,4-Dichloro-2-butene	ug/kg dry	0	1070	1060	1110	99	104	50-150	4	20	
Bromobenzene	ug/kg dry	0	1070	1070	1120	100	105	52-125	5	12	
n-Propylbenzene	ug/kg dry	0	1070	1150	1170	107	110	70-117	2	12	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T145743-MSD1 Original: **23L1358-01**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
1,3,5-Trimethylbenzene	ug/kg dry	0	1070	1090	1120	102	105	57-116	3	24	
t-Butyl Benzene	ug/kg dry	0	1070	1090	1100	102	103	65-117	1	10	
1,2,4-Trimethylbenzene	ug/kg dry	0	1070	1110	1130	103	106	54-123	2	23	
sec-Butylbenzene	ug/kg dry	0	1070	1090	1110	101	104	66-121	3	11	
p-Isopropyltoluene	ug/kg dry	0	1070	1070	1080	100	101	63-118	1	11	
1,3-Dichlorobenzene	ug/kg dry	0	1070	1120	1150	105	107	72-118	2	16	
1,4-Dichlorobenzene	ug/kg dry	0	1070	1090	1110	102	104	69-118	2	18	
n-Butylbenzene	ug/kg dry	0	1070	1110	1120	104	105	72-135	0.8	19	
1,2,3-Trimethylbenzene	ug/kg dry	0	1070	1070	1080	100	101	50-150	2	20	
1,2-Dichlorobenzene	ug/kg dry	0	1070	1080	1120	101	105	71-122	3	17	
1,2-Dibromo-3-chloropropane	ug/kg dry	0	1070	1020	1070	95	100	36-121	4	21	
Hexachloroethane	ug/kg dry	0	1070	1080	1080	101	101	50-150	0.4	20	
1,2,4-Trichlorobenzene	ug/kg dry	0	1070	1240	1240	116	116	58-132	0.3	15	
Naphthalene	ug/kg dry	81.7	1070	1280	1320	112	116	61-136	3	17	
1,2,3-Trichlorobenzene	ug/kg dry	0	1070	1240	1240	116	116	57-138	0.7	15	
2-Methylnaphthalene	ug/kg dry	61.8	1070	1310	1300	116	116	50-150	0.7	20	
1,2-Dichloroethane-d4 (S)	%		30.0	30.1	29.2	100	97	68-133			
Toluene-d8 (S)	%		30.0	29.4	30.2	98	101	75-120			
4-Bromofluorobenzene (S)	%		30.0	30.7	30.5	102	102	69-119			
1,2-Dichlorobenzene-d4 (S)	%		30.0	30.0	29.9	100	100	72-127			

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145788
QC Batch Method: EPA 5035A Purge-and-Trap for Solids and Wastes

Analysis Description: Volatiles, Full MDEQ+ List
Analysis Method: EPA 8260D

METHOD BLANK: T145788-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Dichlorodifluoromethane	ug/kg wet	<250	250	
Chloromethane	ug/kg wet	<250	250	
Vinyl chloride	ug/kg wet	<40	40	
Bromomethane	ug/kg wet	<250	250	
Chloroethane	ug/kg wet	<250	250	
Trichlorofluoromethane	ug/kg wet	<100	100	
Diethyl ether	ug/kg wet	<200	200	
Tert-butyl alcohol	ug/kg wet	<2500	2500	
1,1-Dichloroethene	ug/kg wet	<50	50	
Acetone	ug/kg wet	<1000	1000	
Iodomethane	ug/kg wet	<250	250	
Carbon disulfide	ug/kg wet	<250	250	

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METHOD BLANK: T145788-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Methyl-tert-butyl ether	ug/kg wet	<250	250	
Methylene chloride	ug/kg wet	<250	250	
Acrylonitrile	ug/kg wet	<100	100	
trans-1,2-Dichloroethene	ug/kg wet	<50	50	
1,1-Dichloroethane	ug/kg wet	<50	50	
Diisopropyl Ether	ug/kg wet	<250	250	
2-Butanone	ug/kg wet	<750	750	
cis-1,2-Dichloroethene	ug/kg wet	<50	50	
t-Butyl Ethyl Ether	ug/kg wet	<250	250	
Bromochloromethane	ug/kg wet	<100	100	
Tetrahydrofuran	ug/kg wet	<1000	1000	
Chloroform	ug/kg wet	<50	50	
1,1,1-Trichloroethane	ug/kg wet	<50	50	
Carbon tetrachloride	ug/kg wet	<50	50	
Benzene	ug/kg wet	<50	50	
t-Amyl Methyl Ether	ug/kg wet	<250	250	
1,2-Dichloroethane	ug/kg wet	<50	50	
Cyclohexane	ug/kg wet	<250	250	
Trichloroethene	ug/kg wet	<50	50	
1,2-Dichloropropane	ug/kg wet	<50	50	
Dibromomethane	ug/kg wet	<250	250	
Bromodichloromethane	ug/kg wet	<100	100	
cis-1,3-Dichloropropene	ug/kg wet	<50	50	
4-Methyl-2-pentanone	ug/kg wet	<2500	2500	
Toluene	ug/kg wet	<100	100	
trans-1,3-Dichloropropene	ug/kg wet	<50	50	
1,1,2-Trichloroethane	ug/kg wet	<50	50	
Tetrachloroethene	ug/kg wet	<50	50	
2-Hexanone	ug/kg wet	<2500	2500	
Dibromochloromethane	ug/kg wet	<100	100	
1,2-Dibromoethane (EDB)	ug/kg wet	<50	50	
Chlorobenzene	ug/kg wet	<50	50	
1,1,1,2-Tetrachloroethane	ug/kg wet	<100	100	
Ethylbenzene	ug/kg wet	<50	50	
m,p-Xylene	ug/kg wet	<100	100	
o-Xylene	ug/kg wet	<50	50	
Xylenes, total	ug/kg wet	<150	150	
Styrene	ug/kg wet	<50	50	
Bromoform	ug/kg wet	<100	100	
Isopropylbenzene	ug/kg wet	<250	250	
1,1,2,2-Tetrachloroethane	ug/kg wet	<50	50	
1,2,3-Trichloropropane	ug/kg wet	<100	100	
trans-1,4-Dichloro-2-butene	ug/kg wet	<50	50	
Bromobenzene	ug/kg wet	<100	100	

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METHOD BLANK: T145788-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
n-Propylbenzene	ug/kg wet	<100	100	
1,3,5-Trimethylbenzene	ug/kg wet	<100	100	
t-Butyl Benzene	ug/kg wet	<50	50	
1,2,4-Trimethylbenzene	ug/kg wet	<100	100	
sec-Butylbenzene	ug/kg wet	<50	50	
p-Isopropyltoluene	ug/kg wet	<100	100	
1,3-Dichlorobenzene	ug/kg wet	<100	100	
1,4-Dichlorobenzene	ug/kg wet	<100	100	
n-Butylbenzene	ug/kg wet	<50	50	
1,2,3-Trimethylbenzene	ug/kg wet	<50	50	
1,2-Dichlorobenzene	ug/kg wet	<100	100	
1,2-Dibromo-3-chloropropane	ug/kg wet	<100	100	
Hexachloroethane	ug/kg wet	<100	100	
1,2,4-Trichlorobenzene	ug/kg wet	<330	330	
Naphthalene	ug/kg wet	<330	330	
1,2,3-Trichlorobenzene	ug/kg wet	<250	250	
2-Methylnaphthalene	ug/kg wet	<330	330	
1,2-Dichloroethane-d4 (S)	%	94	68-133	
Toluene-d8 (S)	%	108	75-120	
4-Bromofluorobenzene (S)	%	93	69-119	
1,2-Dichlorobenzene-d4 (S)	%	103	72-127	

LABORATORY CONTROL SAMPLE: T145788-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Dichlorodifluoromethane	ug/kg wet	2500	2450	98	46-153	
Chloromethane	ug/kg wet	2500	2390	96	42-162	
Vinyl chloride	ug/kg wet	2500	2450	98	47-184	
Bromomethane	ug/kg wet	2500	2270	91	34-189	
Chloroethane	ug/kg wet	2500	2320	93	74-151	
Trichlorofluoromethane	ug/kg wet	2500	2620	105	71-172	
Diethyl ether	ug/kg wet	2500	2480	99	50-150	
Tert-butyl alcohol	ug/kg wet	12500	12100	96	50-150	
1,1-Dichloroethene	ug/kg wet	2500	2590	104	64-156	
Acetone	ug/kg wet	2500	2850	114	70-130	
Iodomethane	ug/kg wet	2500	2450	98	70-130	
Carbon disulfide	ug/kg wet	2500	2600	104	70-130	
Methyl-tert-butyl ether	ug/kg wet	2500	2480	99	50-150	
Methylene chloride	ug/kg wet	2500	2480	99	38-167	
Acrylonitrile	ug/kg wet	2500	2270	91	50-150	
trans-1,2-Dichloroethene	ug/kg wet	2500	2470	99	62-142	
1,1-Dichloroethane	ug/kg wet	2500	2470	99	62-120	

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LABORATORY CONTROL SAMPLE: T145788-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Diisopropyl Ether	ug/kg wet	2500	2420	97	50-150	
2-Butanone	ug/kg wet	2500	2760	110	70-130	
cis-1,2-Dichloroethene	ug/kg wet	2500	2410	96	80-120	
t-Butyl Ethyl Ether	ug/kg wet	2500	2510	100	50-150	
Bromochloromethane	ug/kg wet	2500	2540	102	80-120	
Tetrahydrofuran	ug/kg wet	2500	2410	96	50-150	
Chloroform	ug/kg wet	2500	2390	96	80-120	
1,1,1-Trichloroethane	ug/kg wet	2500	2650	106	83-128	
Carbon tetrachloride	ug/kg wet	2500	2680	107	79-141	
Benzene	ug/kg wet	2500	2550	102	80-120	
t-Amyl Methyl Ether	ug/kg wet	2500	2250	90	50-150	
1,2-Dichloroethane	ug/kg wet	2500	2300	92	80-120	
Cyclohexane	ug/kg wet	2500	2760	110	50-150	
Trichloroethene	ug/kg wet	2500	2690	108	69-133	
1,2-Dichloropropane	ug/kg wet	2500	2400	96	80-120	
Dibromomethane	ug/kg wet	2500	2500	100	80-120	
Bromodichloromethane	ug/kg wet	2500	2500	100	80-120	
cis-1,3-Dichloropropene	ug/kg wet	2500	2650	106	73-121	
4-Methyl-2-pentanone	ug/kg wet	2500	<2500	97	70-130	
Toluene	ug/kg wet	2500	2860	114	80-120	
trans-1,3-Dichloropropene	ug/kg wet	2500	2840	114	73-118	
1,1,2-Trichloroethane	ug/kg wet	2500	2670	107	80-120	
Tetrachloroethene	ug/kg wet	2500	2940	118	70-120	
2-Hexanone	ug/kg wet	2500	2650	106	70-130	
Dibromochloromethane	ug/kg wet	2500	2800	112	76-116	
1,2-Dibromoethane (EDB)	ug/kg wet	2500	2810	113	78-113	
Chlorobenzene	ug/kg wet	2500	2780	111	80-120	
1,1,1,2-Tetrachloroethane	ug/kg wet	2500	2820	113	77-120	
Ethylbenzene	ug/kg wet	2500	2920	117	78-120	
m,p-Xylene	ug/kg wet	5000	5760	115	78-122	
o-Xylene	ug/kg wet	2500	2950	118	78-122	
Xylenes, total	ug/kg wet	7500	8700	116	78-122	
Styrene	ug/kg wet	2500	2860	114	76-121	
Bromoform	ug/kg wet	2500	2750	110	71-115	
Isopropylbenzene	ug/kg wet	2500	3020	121	78-127	
1,1,2,2-Tetrachloroethane	ug/kg wet	2500	2740	110	81-124	
1,2,3-Trichloropropane	ug/kg wet	2500	2760	111	69-116	
trans-1,4-Dichloro-2-butene	ug/kg wet	2500	2810	112	50-150	
Bromobenzene	ug/kg wet	2500	2390	95	80-120	
n-Propylbenzene	ug/kg wet	2500	2440	98	76-123	
1,3,5-Trimethylbenzene	ug/kg wet	2500	2690	108	81-125	

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LABORATORY CONTROL SAMPLE: T145788-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
t-Butyl Benzene	ug/kg wet	2500	2640	106	72-129	
1,2,4-Trimethylbenzene	ug/kg wet	2500	2740	110	79-129	
sec-Butylbenzene	ug/kg wet	2500	2620	105	73-133	
p-Isopropyltoluene	ug/kg wet	2500	2650	106	76-129	
1,3-Dichlorobenzene	ug/kg wet	2500	2580	103	80-120	
1,4-Dichlorobenzene	ug/kg wet	2500	2500	100	80-120	
n-Butylbenzene	ug/kg wet	2500	2660	106	81-127	
1,2,3-Trimethylbenzene	ug/kg wet	2500	2610	105	50-150	
1,2-Dichlorobenzene	ug/kg wet	2500	2460	98	80-120	
1,2-Dibromo-3-chloropropane	ug/kg wet	2500	2340	94	58-123	
Hexachloroethane	ug/kg wet	2500	2680	107	50-150	
1,2,4-Trichlorobenzene	ug/kg wet	2500	2570	103	74-116	
Naphthalene	ug/kg wet	2500	2460	98	63-118	
1,2,3-Trichlorobenzene	ug/kg wet	2500	2450	98	74-114	
2-Methylnaphthalene	ug/kg wet	2500	2440	97	50-150	
1,2-Dichloroethane-d4 (S)	%	30.0	28.1	94	68-133	
Toluene-d8 (S)	%	30.0	32.5	108	75-120	
4-Bromofluorobenzene (S)	%	30.0	28.0	93	69-119	
1,2-Dichlorobenzene-d4 (S)	%	30.0	30.0	100	72-127	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T145788-MSD1 Original: **23L1358-14**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Dichlorodifluoromethane	ug/kg dry	0	1220	1360	1350	112	111	43-118	0.09	11	
Chloromethane	ug/kg dry	0	1220	1080	1120	89	93	46-133	4	11	
Vinyl chloride	ug/kg dry	0	1220	157	175	13	14	13-46	11	13	
Bromomethane	ug/kg dry	0	1220	844	962	69	79	48-132	13	13	
Chloroethane	ug/kg dry	0	1220	1100	1100	91	91	53-132	0.2	15	
Trichlorofluoromethane	ug/kg dry	0	1220	1260	1270	104	105	62-135	1	15	
Diethyl ether	ug/kg dry	0	1220	1190	1240	98	102	50-150	4	20	
Tert-butyl alcohol	ug/kg dry	0	6080	3920	4390	64	72	50-150	11	20	
1,1-Dichloroethene	ug/kg dry	0	1220	1250	1280	103	106	60-146	3	15	
Acetone	ug/kg dry	0	1220	1220	1190	100	98	60-140	2	39	
Iodomethane	ug/kg dry	0	1220	1440	1430	118	118	60-140	0.2	30	
Carbon disulfide	ug/kg dry	0	1220	1270	1280	104	105	60-140	0.8	19	
Methyl-tert-butyl ether	ug/kg dry	0	1220	1180	1260	97	104	50-150	6	20	
Methylene chloride	ug/kg dry	0	1220	1200	1250	99	103	39-120	4	32	
Acrylonitrile	ug/kg dry	0	1220	1210	1270	100	104	50-150	4	20	
trans-1,2-Dichloroethene	ug/kg dry	0	1220	1200	1240	98	102	63-140	4	14	
1,1-Dichloroethane	ug/kg dry	0	1220	1210	1250	99	103	62-141	4	21	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T145788-MSD1 Original: **23L1358-14**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Diisopropyl Ether	ug/kg dry	0	1220	1200	1250	99	103	50-150	4	20	
2-Butanone	ug/kg dry	0	1220	1300	1320	107	109	60-140	1	23	
cis-1,2-Dichloroethene	ug/kg dry	0	1220	1180	1220	97	100	50-153	3	15	
t-Butyl Ethyl Ether	ug/kg dry	0	1220	1230	1290	101	106	50-150	5	20	
Bromochloromethane	ug/kg dry	0	1220	1250	1290	103	106	62-121	3	16	
Tetrahydrofuran	ug/kg dry	0	1220	1270	1310	105	108	50-150	3	20	
Chloroform	ug/kg dry	0	1220	1190	1230	98	101	68-124	4	13	
1,1,1-Trichloroethane	ug/kg dry	0	1220	1260	1330	104	109	70-125	5	11	
Carbon tetrachloride	ug/kg dry	0	1220	1250	1310	102	108	68-125	5	12	
Benzene	ug/kg dry	0	1220	1220	1290	101	106	78-114	6	11	
t-Amyl Methyl Ether	ug/kg dry	0	1220	1130	1190	93	98	50-150	5	20	
1,2-Dichloroethane	ug/kg dry	0	1220	1170	1220	96	101	63-132	5	11	
Cyclohexane	ug/kg dry	0	1220	1270	1350	104	111	50-150	7	20	
Trichloroethene	ug/kg dry	0	1220	1250	1340	103	111	70-117	7	14	
1,2-Dichloropropane	ug/kg dry	0	1220	1190	1250	98	103	64-130	5	12	
Dibromomethane	ug/kg dry	0	1220	1240	1290	102	106	70-112	3	11	
Bromodichloromethane	ug/kg dry	0	1220	1200	1260	99	104	57-126	5	13	
cis-1,3-Dichloropropene	ug/kg dry	0	1220	1250	1310	103	108	68-111	5	10	
4-Methyl-2-pentanone	ug/kg dry	0	1220	1210	<2500	100	106	60-140	6	13	
Toluene	ug/kg dry	21.5	1220	1310	1350	106	110	77-118	3	10	
trans-1,3-Dichloropropene	ug/kg dry	0	1220	1250	1330	103	110	63-116	6	12	
1,1,2-Trichloroethane	ug/kg dry	0	1220	1220	1290	100	106	73-112	6	10	
Tetrachloroethene	ug/kg dry	0	1220	1310	1380	108	114	57-126	5	12	
2-Hexanone	ug/kg dry	0	1220	1110	<2500	91	97	60-140	6	13	
Dibromochloromethane	ug/kg dry	0	1220	1220	1340	100	110	59-114	9	12	
1,2-Dibromoethane (EDB)	**ug/kg dry**	**0**	**1220**	**1270**	**1360**	**105**	**112**	**69-111**	**6**	**12**	**209**
Chlorobenzene	ug/kg dry	0	1220	1240	1350	102	111	75-116	8	12	
1,1,1,2-Tetrachloroethane	ug/kg dry	0	1220	1240	1350	102	111	62-118	8	12	
Ethylbenzene	ug/kg dry	0	1220	1310	1410	108	116	72-117	7	11	
m,p-Xylene	ug/kg dry	0	2430	2540	2750	105	113	68-119	8	12	
o-Xylene	ug/kg dry	0	1220	1260	1400	104	115	68-119	10	12	
Xylenes, total	ug/kg dry	0	3650	3810	4150	104	114	68-119	9	12	
Styrene	ug/kg dry	0	1220	1200	1330	99	109	54-110	10	36	
Bromoform	ug/kg dry	0	1220	1150	1260	95	103	46-103	9	12	
Isopropylbenzene	ug/kg dry	0	1220	1300	1410	107	116	75-120	9	12	
1,1,2,2-Tetrachloroethane	ug/kg dry	0	1220	1160	1240	95	102	70-117	7	11	
1,2,3-Trichloropropane	ug/kg dry	0	1220	1190	1250	98	103	49-121	5	12	
trans-1,4-Dichloro-2-butene	ug/kg dry	0	1220	1180	1220	97	100	50-150	4	20	
Bromobenzene	ug/kg dry	0	1220	1200	1300	98	107	52-125	8	12	
n-Propylbenzene	ug/kg dry	0	1220	1240	1340	102	110	70-117	8	12	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T145788-MSD1 Original: **23L1358-14**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
1,3,5-Trimethylbenzene	**ug/kg dry**	**0**	**1220**	**1310**	**1460**	**108**	**120**	**57-116**	**11**	**24**	**209**
t-Butyl Benzene	ug/kg dry	0	1220	1310	1420	108	117	65-117	8	10	
1,2,4-Trimethylbenzene	ug/kg dry	0	1220	1340	1460	111	120	54-123	8	23	
sec-Butylbenzene	ug/kg dry	0	1220	1240	1370	102	113	66-121	10	11	
p-Isopropyltoluene	ug/kg dry	0	1220	1260	1390	104	114	63-118	10	11	
1,3-Dichlorobenzene	ug/kg dry	0	1220	1210	1320	99	108	72-118	9	16	
1,4-Dichlorobenzene	ug/kg dry	0	1220	1170	1270	96	105	69-118	9	18	
n-Butylbenzene	ug/kg dry	0	1220	1260	1380	104	113	72-135	8	19	
1,2,3-Trimethylbenzene	ug/kg dry	0	1220	1270	1400	104	115	50-150	10	20	
1,2-Dichlorobenzene	ug/kg dry	0	1220	1180	1280	97	105	71-122	8	17	
1,2-Dibromo-3-chloropropane	ug/kg dry	0	1220	1250	1310	103	108	36-121	4	21	
Hexachloroethane	ug/kg dry	0	1220	1250	1340	103	111	50-150	7	20	
1,2,4-Trichlorobenzene	ug/kg dry	0	1220	1410	1540	116	126	58-132	9	15	
Naphthalene	ug/kg dry	0	1220	1380	1490	114	122	61-136	7	17	
1,2,3-Trichlorobenzene	ug/kg dry	0	1220	1390	1510	115	124	57-138	8	15	
2-Methylnaphthalene	ug/kg dry	13.5	1220	1390	1510	113	123	50-150	8	20	
1,2-Dichloroethane-d4 (S)	%		30.0	29.6	28.6	99	95	68-133			
Toluene-d8 (S)	%		30.0	31.1	30.9	104	103	75-120			
4-Bromofluorobenzene (S)	%		30.0	29.4	29.8	98	99	69-119			
1,2-Dichlorobenzene-d4 (S)	%		30.0	30.4	30.1	101	100	72-127			

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145827
QC Batch Method: EPA 5035A Purge-and-Trap for Solids and Wastes

Analysis Description: Volatiles, Full MDEQ+ List
Analysis Method: EPA 8260D

METHOD BLANK: T145827-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Dichlorodifluoromethane	ug/kg wet	<250	250	
Chloromethane	ug/kg wet	<250	250	
Vinyl chloride	ug/kg wet	<40	40	
Bromomethane	ug/kg wet	<200	200	
Chloroethane	ug/kg wet	<250	250	
Trichlorofluoromethane	ug/kg wet	<100	100	
Diethyl ether	ug/kg wet	<200	200	
Tert-butyl alcohol	ug/kg wet	<2500	2500	
1,1-Dichloroethene	ug/kg wet	<50	50	
Acetone	ug/kg wet	<1000	1000	
Iodomethane	ug/kg wet	<100	100	
Carbon disulfide	ug/kg wet	<250	250	

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METHOD BLANK: T145827-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Methyl-tert-butyl ether	ug/kg wet	<250	250	
Methylene chloride	ug/kg wet	<250	250	
Acrylonitrile	ug/kg wet	<100	100	
trans-1,2-Dichloroethene	ug/kg wet	<50	50	
1,1-Dichloroethane	ug/kg wet	<50	50	
Diisopropyl Ether	ug/kg wet	<250	250	
2-Butanone	ug/kg wet	<750	750	
cis-1,2-Dichloroethene	ug/kg wet	<50	50	
t-Butyl Ethyl Ether	ug/kg wet	<250	250	
Bromochloromethane	ug/kg wet	<100	100	
Tetrahydrofuran	ug/kg wet	<1000	1000	
Chloroform	ug/kg wet	<50	50	
1,1,1-Trichloroethane	ug/kg wet	<50	50	
Carbon tetrachloride	ug/kg wet	<50	50	
Benzene	ug/kg wet	<50	50	
t-Amyl Methyl Ether	ug/kg wet	<250	250	
1,2-Dichloroethane	ug/kg wet	<50	50	
Cyclohexane	ug/kg wet	<250	250	
Trichloroethene	ug/kg wet	<50	50	
1,2-Dichloropropane	ug/kg wet	<50	50	
Dibromomethane	ug/kg wet	<250	250	
Bromodichloromethane	ug/kg wet	<100	100	
cis-1,3-Dichloropropene	ug/kg wet	<50	50	
4-Methyl-2-pentanone	ug/kg wet	<2500	2500	
Toluene	ug/kg wet	<100	100	
trans-1,3-Dichloropropene	ug/kg wet	<50	50	
1,1,2-Trichloroethane	ug/kg wet	<50	50	
Tetrachloroethene	ug/kg wet	<50	50	
2-Hexanone	ug/kg wet	<2500	2500	
Dibromochloromethane	ug/kg wet	<100	100	
1,2-Dibromoethane (EDB)	ug/kg wet	<50	50	
Chlorobenzene	ug/kg wet	<50	50	
1,1,1,2-Tetrachloroethane	ug/kg wet	<100	100	
Ethylbenzene	ug/kg wet	<50	50	
m,p-Xylene	ug/kg wet	<100	100	
o-Xylene	ug/kg wet	<50	50	
Xylenes, total	ug/kg wet	<150	150	
Styrene	ug/kg wet	<50	50	
Bromoform	ug/kg wet	<100	100	
Isopropylbenzene	ug/kg wet	<250	250	
1,1,2,2-Tetrachloroethane	ug/kg wet	<50	50	
1,2,3-Trichloropropane	ug/kg wet	<100	100	
trans-1,4-Dichloro-2-butene	ug/kg wet	<50	50	
Bromobenzene	ug/kg wet	<100	100	

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METHOD BLANK: T145827-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
n-Propylbenzene	ug/kg wet	<100	100	
1,3,5-Trimethylbenzene	ug/kg wet	<100	100	
t-Butyl Benzene	ug/kg wet	<50	50	
1,2,4-Trimethylbenzene	ug/kg wet	<100	100	
sec-Butylbenzene	ug/kg wet	<50	50	
p-Isopropyltoluene	ug/kg wet	<100	100	
1,3-Dichlorobenzene	ug/kg wet	<100	100	
1,4-Dichlorobenzene	ug/kg wet	<100	100	
n-Butylbenzene	ug/kg wet	<50	50	
1,2,3-Trimethylbenzene	ug/kg wet	<50	50	
1,2-Dichlorobenzene	ug/kg wet	<100	100	
1,2-Dibromo-3-chloropropane	ug/kg wet	<100	100	
Hexachloroethane	ug/kg wet	<100	100	
1,2,4-Trichlorobenzene	ug/kg wet	<330	330	
Naphthalene	ug/kg wet	<330	330	
1,2,3-Trichlorobenzene	ug/kg wet	<250	250	
2-Methylnaphthalene	ug/kg wet	<330	330	
1,2-Dichloroethane-d4 (S)	%	102	68-133	
Toluene-d8 (S)	%	106	75-120	
4-Bromofluorobenzene (S)	%	101	69-119	
1,2-Dichlorobenzene-d4 (S)	%	100	72-127	

LABORATORY CONTROL SAMPLE: T145827-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Dichlorodifluoromethane	ug/kg wet	50.0	<250	83	46-153	
Chloromethane	ug/kg wet	50.0	<250	82	42-162	
Vinyl chloride	ug/kg wet	50.0	41.5	83	47-184	
Bromomethane	ug/kg wet	50.0	<200	98	34-189	
Chloroethane	ug/kg wet	50.0	<250	91	74-151	
Trichlorofluoromethane	ug/kg wet	50.0	<100	99	71-172	
Diethyl ether	ug/kg wet	50.0	<200	96	50-150	
Tert-butyl alcohol	ug/kg wet	250	<2500	86	50-150	
1,1-Dichloroethene	ug/kg wet	50.0	51.5	103	64-156	
Acetone	**ug/kg wet**	**50.0**	**<1000**	**140**	**70-130**	**112**
Iodomethane	ug/kg wet	50.0	<100	73	70-130	
Carbon disulfide	ug/kg wet	50.0	<250	91	70-130	
Methyl-tert-butyl ether	ug/kg wet	50.0	<250	104	50-150	
Methylene chloride	ug/kg wet	50.0	<250	96	38-167	
Acrylonitrile	**ug/kg wet**	**50.0**	**<100**	**181**	**50-150**	**112**
trans-1,2-Dichloroethene	ug/kg wet	50.0	50.0	100	62-142	
1,1-Dichloroethane	ug/kg wet	50.0	<50	96	62-120	

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LABORATORY CONTROL SAMPLE: T145827-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Diisopropyl Ether	ug/kg wet	50.0	<250	100	50-150	
2-Butanone	ug/kg wet	50.0	<750	96	70-130	
cis-1,2-Dichloroethene	ug/kg wet	50.0	<50	99	80-120	
t-Butyl Ethyl Ether	ug/kg wet	50.0	<250	104	50-150	
Bromochloromethane	ug/kg wet	50.0	<100	99	80-120	
Tetrahydrofuran	ug/kg wet	50.0	<1000	96	50-150	
Chloroform	ug/kg wet	50.0	<50	98	80-120	
1,1,1-Trichloroethane	ug/kg wet	50.0	<50	97	83-128	
Carbon tetrachloride	ug/kg wet	50.0	<50	100	79-141	
Benzene	ug/kg wet	50.0	<50	100	80-120	
t-Amyl Methyl Ether	ug/kg wet	50.0	<250	94	50-150	
1,2-Dichloroethane	ug/kg wet	50.0	<50	99	80-120	
Cyclohexane	ug/kg wet	50.0	<250	101	50-150	
Trichloroethene	ug/kg wet	50.0	52.1	104	69-133	
1,2-Dichloropropane	ug/kg wet	50.0	<50	92	80-120	
Dibromomethane	ug/kg wet	50.0	<250	101	80-120	
Bromodichloromethane	ug/kg wet	50.0	<100	97	80-120	
cis-1,3-Dichloropropene	ug/kg wet	50.0	<50	97	73-121	
4-Methyl-2-pentanone	ug/kg wet	50.0	<2500	90	70-130	
Toluene	ug/kg wet	50.0	<100	107	80-120	
trans-1,3-Dichloropropene	ug/kg wet	50.0	<50	97	73-118	
1,1,2-Trichloroethane	ug/kg wet	50.0	<50	98	80-120	
Tetrachloroethene	ug/kg wet	50.0	53.6	107	70-120	
2-Hexanone	ug/kg wet	50.0	<2500	105	70-130	
Dibromochloromethane	ug/kg wet	50.0	<100	102	76-116	
1,2-Dibromoethane (EDB)	ug/kg wet	50.0	51.0	102	78-113	
Chlorobenzene	ug/kg wet	50.0	50.4	101	80-120	
1,1,1,2-Tetrachloroethane	ug/kg wet	50.0	<100	100	77-120	
Ethylbenzene	ug/kg wet	50.0	53.5	107	78-120	
m,p-Xylene	ug/kg wet	100	109	109	78-122	
o-Xylene	ug/kg wet	50.0	<50	100	78-122	
Xylenes, total	ug/kg wet	150	159	106	78-122	
Styrene	ug/kg wet	50.0	<50	100	76-121	
Bromoform	ug/kg wet	50.0	<100	101	71-115	
Isopropylbenzene	ug/kg wet	50.0	<250	108	78-127	
1,1,2,2-Tetrachloroethane	ug/kg wet	50.0	<50	89	81-124	
1,2,3-Trichloropropane	ug/kg wet	50.0	<100	92	69-116	
trans-1,4-Dichloro-2-butene	ug/kg wet	50.0	<50	90	50-150	
Bromobenzene	ug/kg wet	50.0	<100	99	80-120	
n-Propylbenzene	ug/kg wet	50.0	<100	109	76-123	
1,3,5-Trimethylbenzene	ug/kg wet	50.0	<100	98	81-125	

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LABORATORY CONTROL SAMPLE: T145827-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
t-Butyl Benzene	ug/kg wet	50.0	<50	99	72-129	
1,2,4-Trimethylbenzene	ug/kg wet	50.0	<100	99	79-129	
sec-Butylbenzene	ug/kg wet	50.0	<50	96	73-133	
p-Isopropyltoluene	ug/kg wet	50.0	<100	100	76-129	
1,3-Dichlorobenzene	ug/kg wet	50.0	<100	100	80-120	
1,4-Dichlorobenzene	ug/kg wet	50.0	<100	95	80-120	
n-Butylbenzene	ug/kg wet	50.0	<50	99	81-127	
1,2,3-Trimethylbenzene	ug/kg wet	50.0	52.3	105	50-150	
1,2-Dichlorobenzene	ug/kg wet	50.0	<100	95	80-120	
1,2-Dibromo-3-chloropropane	ug/kg wet	50.0	<100	89	58-123	
Hexachloroethane	ug/kg wet	50.0	<100	99	50-150	
1,2,4-Trichlorobenzene	ug/kg wet	50.0	<330	100	74-116	
Naphthalene	ug/kg wet	50.0	<330	95	63-118	
1,2,3-Trichlorobenzene	ug/kg wet	50.0	<250	98	74-114	
2-Methylnaphthalene	ug/kg wet	50.0	<330	90	50-150	
1,2-Dichloroethane-d4 (S)	%	30.0	29.4	98	68-133	
Toluene-d8 (S)	%	30.0	32.4	108	75-120	
4-Bromofluorobenzene (S)	%	30.0	30.7	102	69-119	
1,2-Dichlorobenzene-d4 (S)	%	30.0	29.5	98	72-127	

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145875
QC Batch Method: EPA 5035A Purge-and-Trap for Solids and Wastes

Analysis Description: Volatiles, Full MDEQ+ List
Analysis Method: EPA 8260D

METHOD BLANK: T145875-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Dichlorodifluoromethane	ug/kg wet	<250	250	
Chloromethane	ug/kg wet	<250	250	
Vinyl chloride	ug/kg wet	<40	40	
Bromomethane	ug/kg wet	<200	200	
Chloroethane	ug/kg wet	<250	250	
Trichlorofluoromethane	ug/kg wet	<100	100	
Diethyl ether	ug/kg wet	<200	200	
Tert-butyl alcohol	ug/kg wet	<2500	2500	
1,1-Dichloroethene	ug/kg wet	<50	50	
Acetone	ug/kg wet	<1000	1000	
Iodomethane	ug/kg wet	<100	100	
Carbon disulfide	ug/kg wet	<250	250	
Methyl-tert-butyl ether	ug/kg wet	<250	250	

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METHOD BLANK: T145875-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Methylene chloride	ug/kg wet	<250	250	
Acrylonitrile	ug/kg wet	<100	100	
trans-1,2-Dichloroethene	ug/kg wet	<50	50	
1,1-Dichloroethane	ug/kg wet	<50	50	
Diisopropyl Ether	ug/kg wet	<250	250	
2-Butanone	ug/kg wet	<750	750	
cis-1,2-Dichloroethene	ug/kg wet	<50	50	
t-Butyl Ethyl Ether	ug/kg wet	<250	250	
Bromochloromethane	ug/kg wet	<100	100	
Tetrahydrofuran	ug/kg wet	<1000	1000	
Chloroform	ug/kg wet	<50	50	
1,1,1-Trichloroethane	ug/kg wet	<50	50	
Carbon tetrachloride	ug/kg wet	<50	50	
Benzene	ug/kg wet	<50	50	
t-Amyl Methyl Ether	ug/kg wet	<250	250	
1,2-Dichloroethane	ug/kg wet	<50	50	
Cyclohexane	ug/kg wet	<250	250	
Trichloroethene	ug/kg wet	<50	50	
1,2-Dichloropropane	ug/kg wet	<50	50	
Dibromomethane	ug/kg wet	<250	250	
Bromodichloromethane	ug/kg wet	<100	100	
cis-1,3-Dichloropropene	ug/kg wet	<50	50	
4-Methyl-2-pentanone	ug/kg wet	<2500	2500	
Toluene	ug/kg wet	<100	100	
trans-1,3-Dichloropropene	ug/kg wet	<50	50	
1,1,2-Trichloroethane	ug/kg wet	<50	50	
Tetrachloroethene	ug/kg wet	<50	50	
2-Hexanone	ug/kg wet	<2500	2500	
Dibromochloromethane	ug/kg wet	<100	100	
1,2-Dibromoethane (EDB)	ug/kg wet	<50	50	
Chlorobenzene	ug/kg wet	<50	50	
1,1,1,2-Tetrachloroethane	ug/kg wet	<100	100	
Ethylbenzene	ug/kg wet	<50	50	
m,p-Xylene	ug/kg wet	<100	100	
o-Xylene	ug/kg wet	<50	50	
Xylenes, total	ug/kg wet	<150	150	
Styrene	ug/kg wet	<50	50	
Bromoform	ug/kg wet	<100	100	
Isopropylbenzene	ug/kg wet	<250	250	
1,1,2,2-Tetrachloroethane	ug/kg wet	<50	50	
1,2,3-Trichloropropane	ug/kg wet	<100	100	
trans-1,4-Dichloro-2-butene	ug/kg wet	<50	50	
Bromobenzene	ug/kg wet	<100	100	
n-Propylbenzene	ug/kg wet	<100	100	

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METHOD BLANK: T145875-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
1,3,5-Trimethylbenzene	ug/kg wet	<100	100	
t-Butyl Benzene	ug/kg wet	<50	50	
1,2,4-Trimethylbenzene	ug/kg wet	<100	100	
sec-Butylbenzene	ug/kg wet	<50	50	
p-Isopropyltoluene	ug/kg wet	<100	100	
1,3-Dichlorobenzene	ug/kg wet	<100	100	
1,4-Dichlorobenzene	ug/kg wet	<100	100	
n-Butylbenzene	ug/kg wet	<50	50	
1,2,3-Trimethylbenzene	ug/kg wet	<50	50	
1,2-Dichlorobenzene	ug/kg wet	<100	100	
1,2-Dibromo-3-chloropropane	ug/kg wet	<100	100	
Hexachloroethane	ug/kg wet	<100	100	
1,2,4-Trichlorobenzene	ug/kg wet	<330	330	
Naphthalene	ug/kg wet	<330	330	
1,2,3-Trichlorobenzene	ug/kg wet	<250	250	
2-Methylnaphthalene	ug/kg wet	<330	330	
1,2-Dichloroethane-d4 (S)	%	96	68-133	
Toluene-d8 (S)	%	105	75-120	
4-Bromofluorobenzene (S)	%	92	69-119	
1,2-Dichlorobenzene-d4 (S)	%	97	72-127	

LABORATORY CONTROL SAMPLE: T145875-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Dichlorodifluoromethane	ug/kg wet	50.0	<250	102	46-153	
Chloromethane	ug/kg wet	50.0	<250	95	42-162	
Vinyl chloride	ug/kg wet	50.0	47.3	95	47-184	
Bromomethane	ug/kg wet	50.0	<200	100	34-189	
Chloroethane	ug/kg wet	50.0	<250	97	74-151	
Trichlorofluoromethane	ug/kg wet	50.0	<100	95	71-172	
Diethyl ether	ug/kg wet	50.0	<200	105	50-150	
Tert-butyl alcohol	ug/kg wet	250	<2500	92	50-150	
1,1-Dichloroethene	ug/kg wet	50.0	54.5	109	64-156	
Acetone	**ug/kg wet**	**50.0**	**<1000**	**164**	**70-130**	**112**
Iodomethane	ug/kg wet	50.0	<100	82	70-130	
Carbon disulfide	ug/kg wet	50.0	<250	97	70-130	
Methyl-tert-butyl ether	ug/kg wet	50.0	<250	109	50-150	
Methylene chloride	ug/kg wet	50.0	<250	100	38-167	
Acrylonitrile	**ug/kg wet**	**50.0**	**<100**	**184**	**50-150**	**112**
trans-1,2-Dichloroethene	ug/kg wet	50.0	52.5	105	62-142	
1,1-Dichloroethane	ug/kg wet	50.0	50.1	100	62-120	
Diisopropyl Ether	ug/kg wet	50.0	<250	106	50-150	

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LABORATORY CONTROL SAMPLE: T145875-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
2-Butanone	ug/kg wet	50.0	<750	114	70-130	
cis-1,2-Dichloroethene	ug/kg wet	50.0	51.3	103	80-120	
t-Butyl Ethyl Ether	ug/kg wet	50.0	<250	112	50-150	
Bromochloromethane	ug/kg wet	50.0	<100	96	80-120	
Tetrahydrofuran	ug/kg wet	50.0	<1000	106	50-150	
Chloroform	ug/kg wet	50.0	<50	98	80-120	
1,1,1-Trichloroethane	ug/kg wet	50.0	<50	94	83-128	
Carbon tetrachloride	ug/kg wet	50.0	<50	94	79-141	
Benzene	ug/kg wet	50.0	52.6	105	80-120	
t-Amyl Methyl Ether	ug/kg wet	50.0	<250	100	50-150	
1,2-Dichloroethane	ug/kg wet	50.0	<50	97	80-120	
Cyclohexane	ug/kg wet	50.0	<250	113	50-150	
Trichloroethene	ug/kg wet	50.0	<50	100	69-133	
1,2-Dichloropropane	ug/kg wet	50.0	<50	99	80-120	
Dibromomethane	ug/kg wet	50.0	<250	92	80-120	
Bromodichloromethane	ug/kg wet	50.0	<100	95	80-120	
cis-1,3-Dichloropropene	ug/kg wet	50.0	52.6	105	73-121	
4-Methyl-2-pentanone	ug/kg wet	50.0	<2500	92	70-130	
Toluene	ug/kg wet	50.0	<100	112	80-120	
trans-1,3-Dichloropropene	ug/kg wet	50.0	50.8	102	73-118	
1,1,2-Trichloroethane	ug/kg wet	50.0	<50	97	80-120	
Tetrachloroethene	ug/kg wet	50.0	<50	97	70-120	
2-Hexanone	ug/kg wet	50.0	<2500	121	70-130	
Dibromochloromethane	ug/kg wet	50.0	<100	93	76-116	
1,2-Dibromoethane (EDB)	ug/kg wet	50.0	50.3	101	78-113	
Chlorobenzene	ug/kg wet	50.0	<50	98	80-120	
1,1,1,2-Tetrachloroethane	ug/kg wet	50.0	<100	92	77-120	
Ethylbenzene	ug/kg wet	50.0	54.6	109	78-120	
m,p-Xylene	ug/kg wet	100	105	105	78-122	
o-Xylene	ug/kg wet	50.0	<50	97	78-122	
Xylenes, total	ug/kg wet	150	154	102	78-122	
Styrene	ug/kg wet	50.0	50.1	100	76-121	
Bromoform	ug/kg wet	50.0	<100	87	71-115	
Isopropylbenzene	ug/kg wet	50.0	<250	105	78-127	
1,1,2,2-Tetrachloroethane	ug/kg wet	50.0	<50	88	81-124	
1,2,3-Trichloropropane	ug/kg wet	50.0	<100	92	69-116	
trans-1,4-Dichloro-2-butene	ug/kg wet	50.0	<50	92	50-150	
Bromobenzene	ug/kg wet	50.0	<100	106	80-120	
n-Propylbenzene	ug/kg wet	50.0	<100	120	76-123	
1,3,5-Trimethylbenzene	ug/kg wet	50.0	<100	107	81-125	
t-Butyl Benzene	ug/kg wet	50.0	52.9	106	72-129	

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LABORATORY CONTROL SAMPLE: T145875-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
1,2,4-Trimethylbenzene	ug/kg wet	50.0	<100	107	79-129	
sec-Butylbenzene	ug/kg wet	50.0	53.5	107	73-133	
p-Isopropyltoluene	ug/kg wet	50.0	<100	106	76-129	
1,3-Dichlorobenzene	ug/kg wet	50.0	<100	102	80-120	
1,4-Dichlorobenzene	ug/kg wet	50.0	<100	97	80-120	
n-Butylbenzene	ug/kg wet	50.0	56.1	112	81-127	
1,2,3-Trimethylbenzene	ug/kg wet	50.0	55.9	112	50-150	
1,2-Dichlorobenzene	ug/kg wet	50.0	<100	97	80-120	
1,2-Dibromo-3-chloropropane	ug/kg wet	50.0	<100	88	58-123	
Hexachloroethane	ug/kg wet	50.0	<100	103	50-150	
1,2,4-Trichlorobenzene	ug/kg wet	50.0	<330	100	74-116	
Naphthalene	ug/kg wet	50.0	<330	98	63-118	
1,2,3-Trichlorobenzene	ug/kg wet	50.0	<250	97	74-114	
2-Methylnaphthalene	ug/kg wet	50.0	<330	111	50-150	
1,2-Dichloroethane-d4 (S)	%	30.0	27.8	93	68-133	
Toluene-d8 (S)	%	30.0	31.8	106	75-120	
4-Bromofluorobenzene (S)	%	30.0	27.4	91	69-119	
1,2-Dichlorobenzene-d4 (S)	%	30.0	29.9	100	72-127	

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145687
QC Batch Method: % Solids
Analysis Description: Solids, Dry Weight
Analysis Method: ASTM D2974-07a

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145734
QC Batch Method: % Solids
Analysis Description: Solids, Dry Weight
Analysis Method: ASTM D2974-07a

SAMPLE DUPLICATE: T145734-DUP1 Original: **23L1358-27**

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	Notes
% Solids	% by Wt.	85.4	85.1	0.4	20	

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145971
QC Batch Method: EPA 1010B
Analysis Description: Flash Point (Ignitability)
Analysis Method: EPA 1010B

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LABORATORY CONTROL SAMPLE: T145971-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Flashpoint	°F	127	123	97	95-105	

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145652
QC Batch Method: EPA 9045D
Analysis Description: Corrosivity (pH for waste), 9040/9045
Analysis Method: EPA 9045D

SAMPLE DUPLICATE: T145652-DUP1 Original: **23L1358-27**

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	Notes
Corrosivity-pH	[blank]	8.47	8.43	0.5	20	
pH measured at temperature (°C)	[blank]	21.5	20.9	3	200	

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145636
QC Batch Method: EPA Chapter 7.3
Analysis Description: Reactivity - Cyanide
Analysis Method: EPA Chapter 7.3

METHOD BLANK: T145636-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Cyanide, Reactive	mg/kg wet	<0.50	0.50	

LABORATORY CONTROL SAMPLE: T145636-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Cyanide, Reactive	mg/kg wet	5.00	5.20	104	79-116	

MATRIX SPIKE: T145636-MS1 Original: **23L1358-26**

Parameter	Units	Original Result	Spike Conc.	MS Result	MS % Rec	% Rec Unit	Notes
Cyanide, Reactive	mg/kg dry	0.0759	2.34	2.46	102	64-129	

Trace Project ID: 23L1358
Client Project ID: 1160 Broad St. St. Jospeh MI

QC Batch: T145637
QC Batch Method: EPA Chapter 7.3
Analysis Description: Reactivity - Sulfide
Analysis Method: EPA Chapter 7.3

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METHOD BLANK: T145637-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Sulfide, Reactive	mg/kg wet	<5.0	5.0	

LABORATORY CONTROL SAMPLE: T145637-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Sulfide, Reactive	mg/kg wet	12.5	9.72	78	74-126	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T145637-MSD1 Original: **23L1358-26**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Sulfide, Reactive	mg/kg dry	0.825	5.99	4.73	<5.0	67	68	52-115	2	27	

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AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the laboratory is not accredited by NELAP for this compound
NA	Indicates that the compound is not available.

NOTE: Samples for volatiles that have been extracted with a water miscible solvent were corrected for the total volume of the solvent/water mixture.
Solid matrices Method Blanks are at 100% solids as such results are the same wet or dry.

DATA QUALIFIERS

Trace ID: 23L1358-01

Analysis: EPA 6020B	
Arsenic	Note 229 : The MS and MSD recoveries were out of control. The RPD between the MS and MSD was also out of control. The result for this analyte, in the non-spiked version of the sample, must be considered estimated.
Barium	Note 229 : The MS and MSD recoveries were out of control. The RPD between the MS and MSD was also out of control. The result for this analyte, in the non-spiked version of the sample, must be considered estimated.
Copper	Note 204 : The MSD recovery was out of control low, resulting in an out of control RPD between the MS and the MSD. The result and reporting limit for this analyte, in the non-spiked version of the sample, must be considered estimated.
Lead	Note 203 : The MSD recovery was out of control high, resulting in an out of control RPD between the MS and the MSD. The result for this analyte, in the non-spiked version of the sample, must be considered estimated.
Selenium	Note 204 : The MSD recovery was out of control low, resulting in an out of control RPD between the MS and the MSD. The result and reporting limit for this analyte, in the non-spiked version of the sample, must be considered estimated.
Zinc	Note 229 : The MS and MSD recoveries were out of control. The RPD between the MS and MSD was also out of control. The result for this analyte, in the non-spiked version of the sample, must be considered estimated.
Analysis: EPA 8270E	
	Note 219 : Matrix QC results are unavailable for this sample and QC batch, as a dilution of the sample was required due to matrix interference.
	Note 407 : The reporting limit was raised due to a post extraction dilution required based on matrix interference present in the sample.

CERTIFICATE OF ANALYSIS

Trace ID: 23L1358-02	
Analysis: EPA 8270E	
	Note 407 : The reporting limit was raised due to a post extraction dilution required based on matrix interference present in the sample.
Terphenyl-d14	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.
Trace ID: 23L1358-06	
Analysis: EPA 8270E	
	Note 407 : The reporting limit was raised due to a post extraction dilution required based on matrix interference present in the sample.
Trace ID: 23L1358-07	
Analysis: EPA 8270E	
2-Fluorobiphenyl	Note 314 : The surrogate was out of control low when compared to the control limits. All results and reporting limits must be considered estimated.
Terphenyl-d14	Note 314 : The surrogate was out of control low when compared to the control limits. All results and reporting limits must be considered estimated.
Trace ID: 23L1358-11	
Analysis: EPA 8270E	
	Note 404 : The reporting limit was raised due to a dilution required because of matrix interference.
Trace ID: 23L1358-13	
Analysis: EPA 8270E	
	Note 404 : The reporting limit was raised due to a dilution required because of matrix interference.
Trace ID: 23L1358-14	
Analysis: EPA 8270E	
	Note 407 : The reporting limit was raised due to a post extraction dilution required based on matrix interference present in the sample.
Phenanthrene	Note 105 : The LCS recovery was out of control low. The result and reporting limit for this analyte, in this quality control batch, must be considered estimated.
Trace ID: 23L1358-15	
Analysis: EPA 8270E	
	Note 407 : The reporting limit was raised due to a post extraction dilution required based on matrix interference present in the sample.
2-Fluorobiphenyl	Note 301 : A dilution of 1:5 or greater was required on this sample. Consequently, surrogate recoveries are not available.
Nitrobenzene-d5	Note 301 : A dilution of 1:5 or greater was required on this sample. Consequently, surrogate recoveries are not available.
Phenanthrene	Note 105 : The LCS recovery was out of control low. The result and reporting limit for this analyte, in this quality control batch, must be considered estimated.
Terphenyl-d14	Note 301 : A dilution of 1:5 or greater was required on this sample. Consequently, surrogate recoveries are not available.

CERTIFICATE OF ANALYSIS

Trace ID: 23L1358-16	
Analysis: EPA 8270E	
Phenanthrene	Note 105 : The LCS recovery was out of control low. The result and reporting limit for this analyte, in this quality control batch, must be considered estimated.
Trace ID: 23L1358-17	
Analysis: EPA 8270E	
Phenanthrene	Note 105 : The LCS recovery was out of control low. The result and reporting limit for this analyte, in this quality control batch, must be considered estimated.
Trace ID: 23L1358-18	
Analysis: EPA 8270E	
	Note 407 : The reporting limit was raised due to a post extraction dilution required based on matrix interference present in the sample.
Phenanthrene	Note 105 : The LCS recovery was out of control low. The result and reporting limit for this analyte, in this quality control batch, must be considered estimated.
Trace ID: 23L1358-19	
Analysis: EPA 8270E	
Phenanthrene	Note 105 : The LCS recovery was out of control low. The result and reporting limit for this analyte, in this quality control batch, must be considered estimated.
Trace ID: 23L1358-20	
Analysis: EPA 8270E	
	Note 404 : The reporting limit was raised due to a dilution required because of matrix interference.
2-Fluorobiphenyl	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.
Nitrobenzene-d5	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.
Terphenyl-d14	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.
Trace ID: 23L1358-26	
Analysis: EPA 8270E	
	Note 407 : The reporting limit was raised due to a post extraction dilution required based on matrix interference present in the sample.
2-Fluorobiphenyl	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.
Nitrobenzene-d5	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.
Terphenyl-d14	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.
Trace ID: 23L1358-27	
Analysis: EPA 8270E	
	Note 407 : The reporting limit was raised due to a post extraction dilution required based on matrix interference present in the sample.

CERTIFICATE OF ANALYSIS

2-Fluorobiphenyl	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.
Nitrobenzene-d5	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.
Terphenyl-d14	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.

Trace ID: T145683-BS1

Analysis: EPA 8270E

Phenanthrene	Note 105 : The LCS recovery was out of control low. The result and reporting limit for this analyte, in this quality control batch, must be considered estimated.

Trace ID: T145689-MSD1

Analysis: EPA 7471B

Mercury	Note 238 : This compound was inadvertently not spiked.

Trace ID: T145692-MSD1

Analysis: EPA 6020B

Arsenic	Note 229 : The MS and MSD recoveries were out of control. The RPD between the MS and MSD was also out of control. The result for this analyte, in the non-spiked version of the sample, must be considered estimated.
Barium	Note 229 : The MS and MSD recoveries were out of control. The RPD between the MS and MSD was also out of control. The result for this analyte, in the non-spiked version of the sample, must be considered estimated.
Copper	Note 204 : The MSD recovery was out of control low, resulting in an out of control RPD between the MS and the MSD. The result and reporting limit for this analyte, in the non-spiked version of the sample, must be considered estimated.
Lead	Note 203 : The MSD recovery was out of control high, resulting in an out of control RPD between the MS and the MSD. The result for this analyte, in the non-spiked version of the sample, must be considered estimated.
Selenium	Note 204 : The MSD recovery was out of control low, resulting in an out of control RPD between the MS and the MSD. The result and reporting limit for this analyte, in the non-spiked version of the sample, must be considered estimated.
Zinc	Note 229 : The MS and MSD recoveries were out of control. The RPD between the MS and MSD was also out of control. The result for this analyte, in the non-spiked version of the sample, must be considered estimated.

Trace ID: T145743-BS1

Analysis: EPA 8260D

Acrylonitrile	Note 112 : The LCS recovery was out of control high. Because there were no positive results for this analyte in this QC batch, no data require qualification.

Trace ID: T145743-MS1

Analysis: EPA 8260D

Acrylonitrile	Note 230 : The MS and MSD were out of control high. Because there was no positive result in the non-spiked version of the sample, no data require qualification.
Vinyl chloride	Note 208 : The MS recovery was out of control. Because the MSD recovery and the RPD between the MS and the MSD were in control, no data require qualification.

Trace ID: T145743-MSD1

Analysis: EPA 8260D

2-Butanone	Note 207 : The RPD between the MS and the MSD was out of control. Because both spike recoveries were in control, no data require qualification.
2-Hexanone	Note 207 : The RPD between the MS and the MSD was out of control. Because both spike recoveries were in control, no data require qualification.
Acetone	Note 230.6 : The MSD and RPD were out of control high. Because there was no positive result in the non-spiked version of the sample, no data require qualification.
Acrylonitrile	Note 230 : The MS and MSD were out of control high. Because there was no positive result in the non-spiked version of the sample, no data require qualification.
Benzene	Note 209 : The MSD recovery was out of control. Because the MS recovery and the RPD between the MS and the MSD were in control, no data require qualification.

Trace ID: T145788-MSD1

Analysis: EPA 8260D

1,2-Dibromoethane (EDB)	Note 209 : The MSD recovery was out of control. Because the MS recovery and the RPD between the MS and the MSD were in control, no data require qualification.
1,3,5-Trimethylbenzene	Note 209 : The MSD recovery was out of control. Because the MS recovery and the RPD between the MS and the MSD were in control, no data require qualification.

Trace ID: T145827-BS1

Analysis: EPA 8260D

Acetone	Note 112 : The LCS recovery was out of control high. Because there were no positive results for this analyte in this QC batch, no data require qualification.
Acrylonitrile	Note 112 : The LCS recovery was out of control high. Because there were no positive results for this analyte in this QC batch, no data require qualification.

Trace ID: T145875-BS1

Analysis: EPA 8260D

Acetone	Note 112 : The LCS recovery was out of control high. Because there were no positive results for this analyte in this QC batch, no data require qualification.
Acrylonitrile	Note 112 : The LCS recovery was out of control high. Because there were no positive results for this analyte in this QC batch, no data require qualification.

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

TRACE
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CHAIN-OF-CUSTODY RECORD

TRACE
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Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673
Phone 231.773.5998
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www.trace-labs.com

Trace ID No. 23L1358

Report Results To:

Company Name: Point Blue, LLC	
Report To: Mark Turner/Mark Seaman	
Mailing Address: P.O. Box 304	
City, State, Zip Code: St. Joseph, Michigan 49085	
Office Phone: (269) 934-3737	Cell Phone:
Email Address: mark@pointblu.com, mat@pointblu.com	

Bill To:

PO #: D5090	
Contact Name: Sandy Tjader-Kempski	
Billing Address (if different): 2600 South Cleveland Road	
City, State, Zip Code: St. Joseph, Michigan 49085	
Phone Number: (269) 934-3737	
Billing Email Address: sandy@pointblu.com	

Trace Use:

Logged By: BV
Checked By: NC
Soil Volatiles Preserved (circle if applicable): (MeOH) Low Level Lab
Sampling Time:

Turnaround Requirements:

☒ Standard, 5-10 Days
☐ 3 Day*
☐ 1 Day*
*Results provided end of business day, requires prior approval.

Matrix Key:

S = Soil / Solid
W = Water
SL = Sludge
OI = Oil
WI = Wipes
LW = Liquid Waste
A = Air
D = Drinking Water

Project Name: 1160 Broad St. St. Joseph MI
Sampled By: MAT

Trace No.	Date Collected	Time Collected	Client Sample ID	Metals Field Filtered (Y / N)	Matrix	Number of Containers	Preservation: Cool	HCl	HNO_3	H_2SO_4	NaOH	Other	Analysis Requested: VOC	PNA	MI 10 Metals	Possible Health Hazards?	Remarks
1	12/26/2023	0915	GP-1 (4')	N	S	2	×					×	X	X	X		MEOH
2	12/26/2023	0945	GP-2 (3')	N	S	2	×					×	X	X	X		MEOH
3	12/26/2023	1015	GP-3 (2.5')	N	S	2	×					×	X	X	X		MEOH
4	12/26/2023	1115	GP-4 (3')	N	S	2	×					×	X	X	X		MEOH
5	12/26/2023	1140	GP-5 (3')	N	S	2	×					×	X	X	X		MEOH
6	12/26/2023	1300	GP-6 (3')	N	S	2	×					×	X	X	X		MEOH
7	12/26/2023	1341	GP-7 (3')	N	S	2	×					×	X	X	X		MEOH
8	12/26/2023	1341	GP-7 (3') Dup.	N	S	2	×					×	X	X	X		MEOH
9	12/26/2023	1426	GP-8 (8')	N	S	2	×					×	X	X	X		MEOH
10	12/26/2023	1500	GP-9 (6')	N	S	2	×					×	X	X	X		MEOH

Please Sign

	Released By	Date	Time	Received By	Released By	Received By	Date	Time
1)		12/29/23	9:45	2)				
3)				4)			12/29/23	15:22

In executing this Chain of Custody, the client acknowledges the terms as set forth at www.trace-labs.com/terms-of-agreement.

☐ Check this box if you would not like your samples analyzed if received outside of the conditions outlined in the Trace Sample Acceptance Policy at www.trace-labs.com/downloads.

Form 70-Z.1

CERTIFICATE OF ANALYSIS

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

TRACE
ANALYTICAL LABORATORIES, INC.

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www.trace-labs.com

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Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

Phone 231.773.5998
Fax 888.979.4469
www.trace-labs.com

Trace ID No. 23L1358

Report Results To:

Company Name:	Point Blue, LLC
Report To:	Mark Turner/Mark Seaman
Mailing Address:	P.O. Box 304
City, State, Zip Code:	St. Joseph, Michigan 49085
Office Phone: (269) 934-3737	Cell Phone:
Email Address:	mark@pointblu.com, mat@pointblu.com

Bill To:

PO #:	D5090
Contact Name:	Sandy Tjader-Kempski
Billing Address (if different):	2600 South Cleveland Road
City, State, Zip Code:	St. Joseph, Michigan 49085
Phone Number: (269) 934-3737	
Billing Email Address:	sandy@pointblu.com

Trace Use:

Logged By:	KV
Checked By:	KC
Soil Volatiles Preserved (circle if applicable):	MeOH / Low Level / Lab
Sampling Time:	

Turnaround Requirements:

- ☒ Standard, 5-10 Days
- ☐ 3 Day*
- ☐ 1 Day*

*Results provided end of business day, requires prior approval.

Matrix Key:

S = Soil / Solid	WI = Wipes		
W = Water	LW = Liquid Waste		
SL = Sludge	A = Air		
OI = Oil	D = Drinking Water		

Project Name: 1160 Broad St. St. Joseph MI

Sampled By: MAT

Trace No.	Date Collected	Time Collected	Client Sample ID	Metals Field Filtered (Y / N)	Matrix	Number of Containers	Preservation: Cool	HCl	HNO_3	H_2SO_4	NaOH	Other	Analysis Requested: VOC	PNA	MI 10 Metals	Remarks	Possible Health Hazards?
11	12/26/2023	1530	GP-10 (5')	N	S	2	×					×	X	X	X	MEOH	
12	12/26/2023	1604	GP-11 (9')	N	S	2	×					×	X	X	X	MEOH	
13	12/26/2023	1640	GP-12 (6')	N	S	2	×					×	X	X	X	MEOH	
14	12/27/2023	0830	GP-13 (3')	N	S	2	×					×	X	X	X	MEOH	
15	12/27/2023	0900	GP-14 (3')	N	S	2	×					×	X	X	X	MEOH	
16	12/27/2023	0945	GP-15 (3')	N	S	2	×					×	X	X	X	MEOH	
17	12/27/2023	1020	GP-16 (3')	N	S	2	×					×	X	X	X	MEOH/PID 8.0	
18	12/27/2023	1100	GP-17 (4')	N	S	2	×					×	X	X	X	MEOH/PID 40	
19	12/27/2023	1130	GP-18 (5')	N	S	2	×					×	X	X	X	MEOH/PID 400	
20	12/27/2023	1330	GP-19 (5')	N	S	2	×					×	X	X	X	MEOH/PID 200	
																MEOH/PID 120	

Please Sign	Released By	Date	Time	Received By	Date	Time
1)		12/29/23	9:45	2)		
3)				4)		12/29/23 15:22

In executing this Chain of Custody, the client acknowledges the terms as set forth at www.trace-labs.com/terms-of-agreement.

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CHAIN-OF-CUSTODY RECORD

Trace Analytical Laboratories, Inc.
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Muskegon, MI 49444-2673

Phone 231.773.5998
Fax 888.979.4469
www.trace-labs.com

Trace ID No. 23L1358

Report Results To:

Company Name:	Point Blue, LLC
Report To:	Mark Turner/Mark Seaman
Mailing Address:	P.O. Box 304
City, State, Zip Code:	St. Joseph, Michigan 49085
Office Phone: (269) 934-3737	Cell Phone:
Email Address:	mark@pointblu.com, mat@pointblu.com

Bill To:

PO #:	D5090
Contact Name:	Sandy Tjader-Kempski
Billing Address (if different):	2600 South Cleveland Road
City, State, Zip Code:	St. Joseph, Michigan 49085
Phone Number:	(269) 934-3737
Billing Email Address:	sandy@pointblu.com

Trace Use:

Logged By:	BVC
Checked By:	BVC
Soil Volatiles Preserved (circle if applicable):	MeOH / Low Level / Lab
Sampling Time:	

Turnaround Requirements:

- ☒ Standard, 5-10 Days
- ☐ 3 Day*
- ☐ 1 Day*

*Results provided end of business day, requires prior approval.

Matrix Key:

S = Soil / Solid	WI = Wipes
W = Water	LW = Liquid Waste
SL = Sludge	A = Air
Ol = Oil	D = Drinking Water

Project Name: 1160 Broad St. St. Joseph MI

Sampled By: MAT

Trace No.	Date Collected	Time Collected	Client Sample ID	Metals Field Filtered (Y / N)	Matrix	Number of Containers	Preservation: Cool	HCl	HNO_3	H_2SO_4	NaOH	Other	VOC	PNA	MI 10 Metals	RCI	TCLP MI 10 Metlas	Remarks
21	12/27/2023	1350	GP-20 (4')	N	S	2	×					×	X	X	X			MEOH/PID 400
22	12/27/2023	1350	GP-20 (4') Dup.	N	S	2	×					×	X	X	X			MEOH/PID 400
23	12/27/2023	1345	GP-20 (2')	N	S	1	×								X			
24	12/27/2023	1500	GP-21 (2')	N	S	2	×					×	X	X	X			MEOH
25	12/27/2023	1420	GP-22 (2')	N	S	2	×					×	X	X	X			MEOH
26	12/26/2023	1650	Comp-1 (S)	N	S	3	×					×	X	X		X	X	MEOH
27	12/27/2023	1430	Comp-2 (S)	N	S	3	×					×	X	X		X	X	MEOH

Analysis Requested

Possible Health Hazards?

	Released By	Received By	Date	Time
1)			12/29/23	9:45
2)				
3)				
4)				

Please Sign

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231-773-5998 Phone
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TRACE ANALYTICAL LABORATORIES, INC.

Lab Weight Check – Methanol/DI Water Preserved Soils

Trace ID: 23L1358 Sample Weight Checked By BV

Date: 12/29/23 Balance ID: 14

Sample #	Weight of VOA and MeOH or DI (g) Use only for MeOH Calculation QEC Weight	Weight of VOA and MeOH or DI (g) 2nd weight on vial TRACE Weight	Weight of VOA, MeOH or DI & Soil (g) FINAL Weight	Bottle and MeOH or DI LIMS#	Amount of Soil added (g) (FINAL Wt - TRACE Wt)	Volume of MeOH (QEC-TRACE)/0.792 subtract this value from 10
-01B	33.78	33.64	65.40	23K0819		
-02B	33.86	33.73	59.20	23K0819		
-03B	34.19	34.04	56.34	23K0819		
-04B	33.79	33.65	69.14	23K0819		
-05B	34.09	33.99	60.45	23K0819		
-06B	33.30	33.16	59.62	23K0819		
-07B	34.06	33.91	64.56	23K0819		
-08B	33.98	33.84	62.80	23K0819		
-09B	34.17	33.91	59.83	23K0819		
-10B	34.09	33.97	69.27	23K0819		
-11B	33.29	33.18	67.54	23K0819		
-12B	34.02	33.87	70.26	23K0819		
-13B	34.18	34.08	67.47	23K0819		
-14B	33.91	33.87	68.28	23K0819		
-15B	33.91	33.82	67.85	23K0819		
-16B	33.20	33.09	62.50	23K0819		
-17B	34.02	33.90	66.59	23K0819		
-18B	34.26	34.14	60.73	23K0819		
-19B	34.07	33.93	62.96	23K0819		

Form 70-N.3
Effective 6/20/19

F:\Support Documentation Worksheets\70-Sample Receiving\70-N.3 Lab Weight Check for Methanol Preserved Soils.doc

Trace Analytical Laboratories, Inc.
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Muskegon, MI 49444-2673

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www.trace-labs.com

TRACE ANALYTICAL LABORATORIES, INC.

Lab Weight Check – Methanol/DI Water Preserved Soils

Trace ID: 23L1358 | Sample Weight Checked By: BV
Date: 12/29/23 | Balance ID: 14

Sample #	Weight of VOA and MeOH or DI (g) Use only for MeOH Calculation QEC Weight	Weight of VOA and MeOH or DI (g) 2nd weight on vial TRACE Weight	Weight of VOA, MeOH or DI & Soil (g) FINAL Weight	Bottle and MeOH or DI LIMS#	Amount of Soil added (g) (FINAL Wt - TRACE Wt)	Volume of MeOH (QEC-TRACE)/0.792 subtract this value from 10
-20B	33.75	33.62	69.43	23K0819		
-21B	33.92	33.78	67.32	23K0819		
-22B	34.09	33.97	60.33	23K0819		
V 12/29/23 -23B						
-24B	34.35	34.25	53.12	23K0819		
-25B	34.07	33.96	58.64	23K0819		
-26B	33.88	33.74	68.43	23K0819		
-27B	33.65	33.53	69.64	23K0819		

Form 70-N.3
Effective 6/20/19

F:\Support Documentation Worksheets\70-Sample Receiving\70-N.3 Lab Weight Check for Methanol Preserved Soils.doc

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

TRACE ANALYTICAL LABORATORIES, INC.

231-773-5998 Phone
888-979-4469 Fax
www.trace-labs.com

23L1358
Point Blue, LLC
Project Manager: Jon Mink

Sample Log In Checklist

	Original Observation	Corrected Temperature	IR-9 (CF: 0.0°C)	IR-10 (CF: +0.1°C)	IR-12 (CF: 0.0°C)	SR1 (CF: -0.2°C)	SR2 (CF: -0.1°C)	Temp Blank	Client Sample
Date: 12/29/23									
Time: 15:22									
Initials: BV									
Package Description: Cooler									
Package Temp °C	0.4	0.4			✓				
Representative Sample Temp °C	1.9	1.7				✓		✓	

Sample Receipt

Yes / No

- [x] / [ ] Received on ice or other coolant
- [x] / [ ] Ice still present upon receipt
- [ ] / [x] Custody seals present — [ ] Yes [ ] No Custody seals intact (if applicable)
- [x] Trace Courier [ ] Client Drop-off [ ] UPS [ ] Fed Ex [ ] US Mail [ ] Other

Sample Condition

Yes / No / N/A

- [x] / [ ] / [ ] All sample containers arrived unbroken and labeled
- [x] / [ ] / [ ] Sufficient sample to run requested analyses
- [x] / [ ] / [ ] Correct chemical preservative added to samples
- [ ] / [ ] / [x] Samples preserved at Trace _____
- [ ] / [ ] / [x] Chemical preservation verified, check EMD pH test strip used (if applicable)
  [ ] pH 0-2.5 (Lot: HC311850) [ ] pH 11.0-13.0 (Lot: HC022540) [ ] Other
- [ ] / [ ] / [x] Air bubbles absent from VOAs _____

Chain of Custody (COC)

Yes / No

- [x] / [ ] All bottle labels agree with COC
- [x] / [ ] COC filled out properly
- [x] / [ ] COC signed by client

Notes:

Form 70-A.53
Effective 12/21/23

TRACE Analytical Laboratories, Inc.

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

TRACE
ANALYTICAL LABORATORIES, INC.

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January 31, 2024

Mr. Mark Seaman
Point Blue, LLC
2600 S. Cleveland Ave.
St. Joseph, MI 49085

RE: Trace Project 23L1349
Client Project Broad St. D5090

Dear Mr. Seaman:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

This report was regenerated to add Molybdenum and Nickel to samples GP-12 and GP-17.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

For clients that require NELAP Accreditation, Trace certifies that these test results meet all requirements of the NELAP Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAP at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at jmink@trace-labs.com.

Sincerely,

Jon Mink
Senior Project Manager
Enclosures

TNI EL V1:2016

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

231-773-5998 Phone
888-979-4469 Fax
www.trace-labs.com

SAMPLE SUMMARY

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
23L1349-01	GP-2	Aqueous	BKZ	12/26/23 10:15	12/29/23 09:45
23L1349-02	GP-4	Aqueous	BKZ	12/26/23 11:37	12/29/23 09:45
23L1349-03	GP-6	Aqueous	BKZ	12/26/23 13:46	12/29/23 09:45
23L1349-04	GP-9	Aqueous	BKZ	12/26/23 15:27	12/29/23 09:45
23L1349-05	Field Blank	Aqueous	BKZ	12/26/23 09:00	12/29/23 09:45
Sample type: Field Blank					
23L1349-06	GP-11	Aqueous	BKZ	12/26/23 16:35	12/29/23 09:45
23L1349-07	GP-12	Aqueous	BKZ	12/27/23 08:38	12/29/23 09:45
23L1349-08	GP-12 Duplicate	Aqueous	BKZ	12/26/23 08:40	12/29/23 09:45
23L1349-09	GP-13	Aqueous	BKZ	12/27/23 10:08	12/29/23 09:45
23L1349-10	GP-14	Aqueous	BKZ	12/27/23 16:50	12/29/23 09:45
23L1349-11	GP-15	Aqueous	BKZ	12/27/23 11:20	12/29/23 09:45
23L1349-12	GP-17	Aqueous	BKZ	12/27/23 14:01	12/29/23 09:45
23L1349-13	GP-18	Aqueous	BKZ	12/27/23 14:48	12/29/23 09:45
23L1349-14	GP-19	Aqueous	BKZ	12/27/23 16:01	12/29/23 09:45
23L1349-15	GP-19 Duplicate	Aqueous	BKZ	12/27/23 16:03	12/29/23 09:45
23L1349-16	GP-21	Aqueous	BKZ	12/27/23 16:26	12/29/23 09:45
23L1349-17	GP-22	Aqueous	BKZ	12/27/23 16:56	12/29/23 09:45
23L1349-18	Trip Blank	Aqueous	BKZ	12/26/23 07:30	12/29/23 09:45
Sample type: Trip Blank					
23L1349-19	Field Blank	Aqueous	BKZ	12/27/23 08:12	12/29/23 09:45
Sample type: Field Blank					
23L1349-20	Trip Blank	Aqueous	BKZ	12/27/23 07:24	12/29/23 09:45
Sample type: Trip Blank					

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-01 Matrix: Aqueous Date Collected: 12/26/23 10:15
Sample ID: GP-2 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	<0.00020	mg/L	0.00020	1	01/03/24	lv	01/04/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Barium	<0.10	mg/L	0.10	1	01/03/24	lv	01/04/24	acs		
Cadmium	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Chromium	<0.010	mg/L	0.010	1	01/03/24	lv	01/04/24	acs		
Copper	<0.0040	mg/L	0.0040	1	01/03/24	lv	01/04/24	acs		
Lead	<0.0030	mg/L	0.0030	1	01/03/24	lv	01/04/24	acs		
Selenium	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Silver	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Zinc	<0.050	mg/L	0.050	1	01/03/24	lv	01/04/24	acs		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145630										
Naphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
2-Methylnaphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthylene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluorene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Phenanthrene	<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Anthracene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Pyrene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) anthracene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Chrysene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (b) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (k) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-01 Matrix: Aqueous Date Collected: 12/26/23 10:15
Sample ID: GP-2 Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Benzo (a) pyrene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Indeno (1,2,3-cd) pyrene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Dibenz (a,h) anthracene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (g,h,i) perylene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Surrogates:											
Nitrobenzene-d5	*	**254**	%	31-130	5	01/02/24	kbc	01/04/24	avl	312, N	
2-Fluorobiphenyl	*	**228**	%	37-155	5	01/02/24	kbc	01/04/24	avl	312, N	
Terphenyl-d14		154	%	60-172	5	01/02/24	kbc	01/04/24	avl	N	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145678											
Dichlorodifluoromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Vinyl chloride		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloroethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Trichlorofluoromethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diethyl ether		<10	ug/L	10	1	01/03/24	nw	01/03/24	nw		
Tert-butyl alcohol		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw	N	
1,1-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Acetone		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Iodomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Carbon disulfide		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methyl-tert-butyl ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methylene chloride		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Acrylonitrile		<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
trans-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1-Dichloroethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diisopropyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Butanone		<25	ug/L	25	1	01/03/24	nw	01/03/24	nw		
cis-1,2-Dichloroethene		**2.0**	**ug/L**	**1.0**	**1**	**01/03/24**	**nw**	**01/03/24**	**nw**		
t-Butyl Ethyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-01 Matrix: Aqueous Date Collected: 12/26/23 10:15
Sample ID: GP-2 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrahydrofuran	<90	ug/L	90	1	01/03/24	nw	01/03/24	nw		
Chloroform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Cyclohexane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
Trichloroethene	**1.6**	**ug/L**	**1.0**	**1**	**01/03/24**	**nw**	**01/03/24**	**nw**		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Dibromomethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Toluene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrachloroethene	**5.6**	**ug/L**	**1.0**	**1**	**01/03/24**	**nw**	**01/03/24**	**nw**		
2-Hexanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Chlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Ethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
m,p-Xylene	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
o-Xylene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Xylenes, total	<3.0	ug/L	3.0	1	01/03/24	nw	01/03/24	nw		
Styrene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromoform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-01 Matrix: Aqueous Date Collected: 12/26/23 10:15
Sample ID: GP-2 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
sec-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
Hexachloroethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Naphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Surrogates:										
1,2-Dichloroethane-d4	96	%	68-133	1	01/03/24	nw	01/03/24	nw		
Toluene-d8	108	%	75-120	1	01/03/24	nw	01/03/24	nw		
4-Bromofluorobenzene	99	%	69-119	1	01/03/24	nw	01/03/24	nw		
1,2-Dichlorobenzene-d4	101	%	72-127	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-02 Matrix: Aqueous Date Collected: 12/26/23 11:37
Sample ID: GP-4 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	<0.00020	mg/L	0.00020	1	01/03/24	lv	01/04/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	**0.0070**	**mg/L**	**0.0050**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Barium	**0.35**	**mg/L**	**0.10**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Cadmium	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Chromium	**0.037**	**mg/L**	**0.010**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Copper	**0.025**	**mg/L**	**0.0040**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Lead	**0.017**	**mg/L**	**0.0030**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Selenium	**0.0071**	**mg/L**	**0.0050**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Silver	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Zinc	**0.071**	**mg/L**	**0.050**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145630										
Naphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
2-Methylnaphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthylene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluorene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Phenanthrene	<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Anthracene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Pyrene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) anthracene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Chrysene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (b) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (k) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-02 Matrix: Aqueous Date Collected: 12/26/23 11:37
Sample ID: GP-4 Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Benzo (a) pyrene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Indeno (1,2,3-cd) pyrene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Dibenz (a,h) anthracene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (g,h,i) perylene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Surrogates:											
Nitrobenzene-d5	*	**162**	%	31-130	5	01/02/24	kbc	01/04/24	avl	802, N	
2-Fluorobiphenyl		111	%	37-155	5	01/02/24	kbc	01/04/24	avl	N	
Terphenyl-d14		127	%	60-172	5	01/02/24	kbc	01/04/24	avl	N	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145678											
Dichlorodifluoromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Vinyl chloride		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloroethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Trichlorofluoromethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diethyl ether		<10	ug/L	10	1	01/03/24	nw	01/03/24	nw		
Tert-butyl alcohol		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw	N	
1,1-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Acetone		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Iodomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Carbon disulfide		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methyl-tert-butyl ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methylene chloride		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Acrylonitrile		<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
trans-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1-Dichloroethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diisopropyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Butanone		<25	ug/L	25	1	01/03/24	nw	01/03/24	nw		
cis-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Ethyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-02 Matrix: Aqueous Date Collected: 12/26/23 11:37
Sample ID: GP-4 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrahydrofuran	<90	ug/L	90	1	01/03/24	nw	01/03/24	nw		
Chloroform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Cyclohexane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
Trichloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Dibromomethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Toluene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
2-Hexanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Chlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Ethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
m,p-Xylene	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
o-Xylene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Xylenes, total	<3.0	ug/L	3.0	1	01/03/24	nw	01/03/24	nw		
Styrene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromoform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-02 Matrix: Aqueous Date Collected: 12/26/23 11:37
Sample ID: GP-4 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
sec-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
Hexachloroethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Naphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Surrogates:										
1,2-Dichloroethane-d4	96	%	68-133	1	01/03/24	nw	01/03/24	nw		
Toluene-d8	105	%	75-120	1	01/03/24	nw	01/03/24	nw		
4-Bromofluorobenzene	97	%	69-119	1	01/03/24	nw	01/03/24	nw		
1,2-Dichlorobenzene-d4	102	%	72-127	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-03 Matrix: Aqueous Date Collected: 12/26/23 13:46
Sample ID: GP-6 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	<0.00020	mg/L	0.00020	1	01/03/24	lv	01/04/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Barium	**0.14**	**mg/L**	**0.10**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Cadmium	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Chromium	<0.010	mg/L	0.010	1	01/03/24	lv	01/04/24	acs		
Copper	<0.0040	mg/L	0.0040	1	01/03/24	lv	01/04/24	acs		
Lead	<0.0030	mg/L	0.0030	1	01/03/24	lv	01/04/24	acs		
Selenium	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Silver	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Zinc	<0.050	mg/L	0.050	1	01/03/24	lv	01/04/24	acs		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145630										
Naphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
2-Methylnaphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthylene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluorene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Phenanthrene	<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Anthracene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Pyrene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) anthracene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Chrysene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (b) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (k) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-03 Matrix: Aqueous Date Collected: 12/26/23 13:46
Sample ID: GP-6 Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Benzo (a) pyrene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Indeno (1,2,3-cd) pyrene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Dibenz (a,h) anthracene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (g,h,i) perylene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Surrogates:											
Nitrobenzene-d5	*	**155**	%	31-130	5	01/02/24	kbc	01/04/24	avl	802, N	
2-Fluorobiphenyl		120	%	37-155	5	01/02/24	kbc	01/04/24	avl	N	
Terphenyl-d14		157	%	60-172	5	01/02/24	kbc	01/04/24	avl	N	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145678											
Dichlorodifluoromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Vinyl chloride		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloroethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Trichlorofluoromethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diethyl ether		<10	ug/L	10	1	01/03/24	nw	01/03/24	nw		
Tert-butyl alcohol		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw	N	
1,1-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Acetone		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Iodomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Carbon disulfide		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methyl-tert-butyl ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methylene chloride		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Acrylonitrile		<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
trans-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1-Dichloroethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diisopropyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Butanone		<25	ug/L	25	1	01/03/24	nw	01/03/24	nw		
cis-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Ethyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-03 Matrix: Aqueous Date Collected: 12/26/23 13:46
Sample ID: GP-6 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrahydrofuran	<90	ug/L	90	1	01/03/24	nw	01/03/24	nw		
Chloroform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Cyclohexane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
Trichloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Dibromomethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Toluene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
2-Hexanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Chlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Ethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
m,p-Xylene	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
o-Xylene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Xylenes, total	<3.0	ug/L	3.0	1	01/03/24	nw	01/03/24	nw		
Styrene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromoform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-03 Matrix: Aqueous Date Collected: 12/26/23 13:46
Sample ID: GP-6 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
sec-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
Hexachloroethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Naphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Surrogates:										
1,2-Dichloroethane-d4	99	%	68-133	1	01/03/24	nw	01/03/24	nw		
Toluene-d8	105	%	75-120	1	01/03/24	nw	01/03/24	nw		
4-Bromofluorobenzene	103	%	69-119	1	01/03/24	nw	01/03/24	nw		
1,2-Dichlorobenzene-d4	98	%	72-127	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-04 Matrix: Aqueous Date Collected: 12/26/23 15:27
Sample ID: GP-9 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	<0.00020	mg/L	0.00020	1	01/03/24	lv	01/04/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Barium	<0.10	mg/L	0.10	1	01/03/24	lv	01/04/24	acs		
Cadmium	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Chromium	<0.010	mg/L	0.010	1	01/03/24	lv	01/04/24	acs		
Copper	<0.0040	mg/L	0.0040	1	01/03/24	lv	01/04/24	acs		
Lead	**0.0032**	**mg/L**	**0.0030**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Selenium	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Silver	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Zinc	<0.050	mg/L	0.050	1	01/03/24	lv	01/04/24	acs		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145630										
Naphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
2-Methylnaphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthylene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluorene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Phenanthrene	<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Anthracene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Pyrene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) anthracene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Chrysene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (b) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (k) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-04 Matrix: Aqueous Date Collected: 12/26/23 15:27
Sample ID: GP-9 Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Benzo (a) pyrene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Indeno (1,2,3-cd) pyrene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Dibenz (a,h) anthracene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (g,h,i) perylene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Surrogates:											
Nitrobenzene-d5	*	**555**	%	31-130	5	01/02/24	kbc	01/04/24	avl	312, N	
2-Fluorobiphenyl	*	**443**	%	37-155	5	01/02/24	kbc	01/04/24	avl	312, N	
Terphenyl-d14	*	**193**	%	60-172	5	01/02/24	kbc	01/04/24	avl	312, N	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145678											
Dichlorodifluoromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Vinyl chloride		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloroethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Trichlorofluoromethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diethyl ether		<10	ug/L	10	1	01/03/24	nw	01/03/24	nw		
Tert-butyl alcohol		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw	N	
1,1-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Acetone		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Iodomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Carbon disulfide		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methyl-tert-butyl ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methylene chloride		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Acrylonitrile		<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
trans-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1-Dichloroethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diisopropyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Butanone		<25	ug/L	25	1	01/03/24	nw	01/03/24	nw		
cis-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Ethyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-04 Matrix: Aqueous Date Collected: 12/26/23 15:27
Sample ID: GP-9 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrahydrofuran	<90	ug/L	90	1	01/03/24	nw	01/03/24	nw		
Chloroform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Cyclohexane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
Trichloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Dibromomethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Toluene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
2-Hexanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Chlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Ethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
m,p-Xylene	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
o-Xylene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Xylenes, total	<3.0	ug/L	3.0	1	01/03/24	nw	01/03/24	nw		
Styrene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromoform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-04 Matrix: Aqueous Date Collected: 12/26/23 15:27
Sample ID: GP-9 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
sec-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
Hexachloroethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Naphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Surrogates:										
1,2-Dichloroethane-d4	96	%	68-133	1	01/03/24	nw	01/03/24	nw		
Toluene-d8	102	%	75-120	1	01/03/24	nw	01/03/24	nw		
4-Bromofluorobenzene	105	%	69-119	1	01/03/24	nw	01/03/24	nw		
1,2-Dichlorobenzene-d4	97	%	72-127	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-05 Matrix: Aqueous Date Collected: 12/26/23 09:00
Sample ID: Field Blank Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145785										
Dichlorodifluoromethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Chloromethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Vinyl chloride	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Bromomethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Chloroethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Trichlorofluoromethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Diethyl ether	<10	ug/L	10	1	01/04/24	ats	01/04/24	ats		
Tert-butyl alcohol	<50	ug/L	50	1	01/04/24	ats	01/04/24	ats	N	
1,1-Dichloroethene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Acetone	<50	ug/L	50	1	01/04/24	ats	01/04/24	ats		
Iodomethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Carbon disulfide	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Methyl-tert-butyl ether	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Methylene chloride	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Acrylonitrile	<2.0	ug/L	2.0	1	01/04/24	ats	01/04/24	ats		
trans-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,1-Dichloroethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Diisopropyl Ether	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
2-Butanone	<25	ug/L	25	1	01/04/24	ats	01/04/24	ats		
cis-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
t-Butyl Ethyl Ether	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats	N	
Bromochloromethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Tetrahydrofuran	<90	ug/L	90	1	01/04/24	ats	01/04/24	ats		
Chloroform	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Benzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Cyclohexane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats	N	
Trichloroethene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-05 Matrix: Aqueous Date Collected: 12/26/23 09:00
Sample ID: Field Blank Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Dibromomethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/04/24	ats	01/04/24	ats		
Toluene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
2-Hexanone	<50	ug/L	50	1	01/04/24	ats	01/04/24	ats		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Chlorobenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Ethylbenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
m,p-Xylene	<2.0	ug/L	2.0	1	01/04/24	ats	01/04/24	ats		
o-Xylene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Xylenes, total	<3.0	ug/L	3.0	1	01/04/24	ats	01/04/24	ats		
Styrene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Bromoform	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Bromobenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
sec-Butylbenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
n-Butylbenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-05 Matrix: Aqueous Date Collected: 12/26/23 09:00
Sample ID: Field Blank Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/04/24	ats	01/04/24	ats		
Hexachloroethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Naphthalene	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Surrogates:										
1,2-Dichloroethane-d4	102	%	68-133	1	01/04/24	ats	01/04/24	ats		
Toluene-d8	109	%	75-120	1	01/04/24	ats	01/04/24	ats		
4-Bromofluorobenzene	99	%	69-119	1	01/04/24	ats	01/04/24	ats		
1,2-Dichlorobenzene-d4	100	%	72-127	1	01/04/24	ats	01/04/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-06 Matrix: Aqueous Date Collected: 12/26/23 16:35
Sample ID: GP-11 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	<0.00020	mg/L	0.00020	1	01/03/24	lv	01/04/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	**0.0064**	**mg/L**	**0.0050**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Barium	**0.33**	**mg/L**	**0.10**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Cadmium	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Chromium	**0.027**	**mg/L**	**0.010**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Copper	**0.022**	**mg/L**	**0.0040**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Lead	**0.033**	**mg/L**	**0.0030**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Selenium	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Silver	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Zinc	**0.067**	**mg/L**	**0.050**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145630										
Naphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
2-Methylnaphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthylene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	112, N	
Fluorene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Phenanthrene	<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Anthracene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Pyrene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) anthracene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Chrysene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (b) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (k) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-06 Matrix: Aqueous Date Collected: 12/26/23 16:35
Sample ID: GP-11 Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Benzo (a) pyrene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Indeno (1,2,3-cd) pyrene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Dibenz (a,h) anthracene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (g,h,i) perylene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Surrogates:											
Nitrobenzene-d5	*	**257**	%	31-130	5	01/02/24	kbc	01/04/24	avl	312, N	
2-Fluorobiphenyl	*	**238**	%	37-155	5	01/02/24	kbc	01/04/24	avl	312, N	
Terphenyl-d14		139	%	60-172	5	01/02/24	kbc	01/04/24	avl	N	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145678											
Dichlorodifluoromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Vinyl chloride		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloroethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Trichlorofluoromethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diethyl ether		<10	ug/L	10	1	01/03/24	nw	01/03/24	nw		
Tert-butyl alcohol		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw	N	
1,1-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Acetone		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Iodomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Carbon disulfide		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methyl-tert-butyl ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methylene chloride		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Acrylonitrile		<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
trans-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1-Dichloroethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diisopropyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Butanone		<25	ug/L	25	1	01/03/24	nw	01/03/24	nw		
cis-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Ethyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-06 Matrix: Aqueous Date Collected: 12/26/23 16:35
Sample ID: GP-11 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrahydrofuran	<90	ug/L	90	1	01/03/24	nw	01/03/24	nw		
Chloroform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Cyclohexane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
Trichloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Dibromomethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Toluene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
2-Hexanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Chlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Ethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
m,p-Xylene	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
o-Xylene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Xylenes, total	<3.0	ug/L	3.0	1	01/03/24	nw	01/03/24	nw		
Styrene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromoform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-06 Matrix: Aqueous Date Collected: 12/26/23 16:35
Sample ID: GP-11 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
sec-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
Hexachloroethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Naphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Surrogates:										
1,2-Dichloroethane-d4	99	%	68-133	1	01/03/24	nw	01/03/24	nw		
Toluene-d8	100	%	75-120	1	01/03/24	nw	01/03/24	nw		
4-Bromofluorobenzene	98	%	69-119	1	01/03/24	nw	01/03/24	nw		
1,2-Dichlorobenzene-d4	100	%	72-127	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-07 Matrix: Aqueous Date Collected: 12/27/23 08:38
Sample ID: GP-12 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	<0.00020	mg/L	0.00020	1	01/03/24	lv	01/04/24	jma		
METALS, TOTAL										
Analysis Method: EPA 1631E										
Batch: T145609										
Mercury	<0.50	ng/L	0.50	1	01/02/24	acs	01/03/24	acs		
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Barium	**0.19**	**mg/L**	**0.10**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**	**205**	
Cadmium	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Chromium	<0.010	mg/L	0.010	1	01/03/24	lv	01/04/24	acs		
Copper	<0.0040	mg/L	0.0040	1	01/03/24	lv	01/04/24	acs		
Lead	<0.0030	mg/L	0.0030	1	01/03/24	lv	01/04/24	acs		
Molybdenum	<0.050	mg/L	0.050	1	01/03/24	jm	01/31/24	acs		
Nickel	<0.020	mg/L	0.020	1	01/03/24	jm	01/31/24	acs		
Selenium	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Silver	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Zinc	<0.050	mg/L	0.050	1	01/03/24	lv	01/04/24	acs		
WET CHEMISTRY										
Analysis Method: EPA 1664B										
Batch: T145679										
Oil & Grease (HEM)	<5.0	mg/L	5.0	0.9630757	01/03/24	kbc	01/04/24	kbc		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-07 Matrix: Aqueous Date Collected: 12/27/23 08:38
Sample ID: GP-12 Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8270E											
Batch: T145630											
Naphthalene		<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
2-Methylnaphthalene		<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthylene		<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthene		<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluorene		<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Phenanthrene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Anthracene		<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluoranthene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Pyrene		<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) anthracene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Chrysene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (b) fluoranthene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (k) fluoranthene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) pyrene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Indeno (1,2,3-cd) pyrene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Dibenz (a,h) anthracene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (g,h,i) perylene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Surrogates:											
Nitrobenzene-d5	*	**174**	%	31-130	5	01/02/24	kbc	01/04/24	avl	802, N	
2-Fluorobiphenyl		145	%	37-155	5	01/02/24	kbc	01/04/24	avl	N	
Terphenyl-d14		172	%	60-172	5	01/02/24	kbc	01/04/24	avl	N	
PESTICIDES/PCBS											
Analysis Method: EPA 608											
Batch: T145746											
Aroclor-1016		<0.10	ug/L	0.10	1	01/04/24	kbc	01/08/24	ahr	N	
Aroclor-1221		<0.10	ug/L	0.10	1	01/04/24	kbc	01/08/24	ahr	N	
Aroclor-1232		<0.10	ug/L	0.10	1	01/04/24	kbc	01/08/24	ahr	N	
Aroclor-1242		<0.10	ug/L	0.10	1	01/04/24	kbc	01/08/24	ahr	N	
Aroclor-1248		<0.10	ug/L	0.10	1	01/04/24	kbc	01/08/24	ahr	N	
Aroclor-1254		<0.10	ug/L	0.10	1	01/04/24	kbc	01/08/24	ahr	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-07 Matrix: Aqueous Date Collected: 12/27/23 08:38
Sample ID: GP-12 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
PESTICIDES/PCBS										
Aroclor-1260	<0.10	ug/L	0.10	1	01/04/24	kbc	01/08/24	ahr	N	
4,4'-DDT	<0.020	ug/L	0.020	1	01/02/24	kbc	01/02/24	av	N	
4,4'-DDE	<0.10	ug/L	0.10	1	01/02/24	kbc	01/02/24	av	N	
4,4'-DDD	<0.10	ug/L	0.10	1	01/02/24	kbc	01/02/24	av	N	
Aldrin	<0.010	ug/L	0.010	1	01/02/24	kbc	01/02/24	av	N	
alpha-BHC	<0.050	ug/L	0.050	1	01/02/24	kbc	01/02/24	av	N	
alpha-Chlordane	<0.011	ug/L	0.011	1	01/02/24	kbc	01/02/24	av	N	
beta-BHC	<0.020	ug/L	0.020	1	01/02/24	kbc	01/02/24	av	N	
Chlordane	<0.030	ug/L	0.030	1	01/02/24	kbc	01/02/24	av	N	
delta-BHC	<0.050	ug/L	0.050	1	01/02/24	kbc	01/02/24	av	N	
Dieldrin	<0.020	ug/L	0.020	1	01/02/24	kbc	01/02/24	av	N	
Endosulfan I	<0.030	ug/L	0.030	1	01/02/24	kbc	01/02/24	av	N	
Endosulfan II	<0.030	ug/L	0.030	1	01/02/24	kbc	01/02/24	av	N	
Endosulfan sulfate	<0.050	ug/L	0.050	1	01/02/24	kbc	01/02/24	av	N	
Endrin	<0.020	ug/L	0.020	1	01/02/24	kbc	01/02/24	av	N	
Endrin aldehyde	<0.020	ug/L	0.020	1	01/02/24	kbc	01/02/24	av	N	
Endrin ketone	<0.020	ug/L	0.020	1	01/02/24	kbc	01/02/24	av	N	
gamma-BHC (Lindane)	<0.030	ug/L	0.030	1	01/02/24	kbc	01/02/24	av	N	
gamma-Chlordane	<0.010	ug/L	0.010	1	01/02/24	kbc	01/02/24	av	N	
Heptachlor	<0.010	ug/L	0.010	1	01/02/24	kbc	01/02/24	av	N	
Heptachlor epoxide	<0.010	ug/L	0.010	1	01/02/24	kbc	01/02/24	av	N	
Methoxychlor	<0.50	ug/L	0.50	1	01/02/24	kbc	01/02/24	av	N	
Toxaphene	<1.0	ug/L	1.0	1	01/02/24	kbc	01/02/24	av	N	
Surrogates:										
Tetrachloro-m-xylene	61	%	18-105	1	01/04/24	kbc	01/08/24	ahr	N	
Tetrachloro-m-xylene	56	%	34-106	1	01/02/24	kbc	01/02/24	av	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-07 Matrix: Aqueous Date Collected: 12/27/23 08:38
Sample ID: GP-12 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145785										
Dichlorodifluoromethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Chloromethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Vinyl chloride	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Bromomethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Chloroethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Trichlorofluoromethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Diethyl ether	<10	ug/L	10	1	01/04/24	ats	01/04/24	ats		
Tert-butyl alcohol	<50	ug/L	50	1	01/04/24	ats	01/04/24	ats	N	
1,1-Dichloroethene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Acetone	<50	ug/L	50	1	01/04/24	ats	01/04/24	ats		
Iodomethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Carbon disulfide	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Methyl-tert-butyl ether	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Methylene chloride	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Acrylonitrile	<2.0	ug/L	2.0	1	01/04/24	ats	01/04/24	ats		
trans-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,1-Dichloroethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Diisopropyl Ether	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
2-Butanone	<25	ug/L	25	1	01/04/24	ats	01/04/24	ats		
cis-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
t-Butyl Ethyl Ether	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats	N	
Bromochloromethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Tetrahydrofuran	<90	ug/L	90	1	01/04/24	ats	01/04/24	ats		
Chloroform	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Benzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Cyclohexane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats	N	
Trichloroethene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-07 Matrix: Aqueous Date Collected: 12/27/23 08:38
Sample ID: GP-12 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Dibromomethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/04/24	ats	01/04/24	ats		
Toluene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
2-Hexanone	<50	ug/L	50	1	01/04/24	ats	01/04/24	ats		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Chlorobenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Ethylbenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
m,p-Xylene	<2.0	ug/L	2.0	1	01/04/24	ats	01/04/24	ats		
o-Xylene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Xylenes, total	<3.0	ug/L	3.0	1	01/04/24	ats	01/04/24	ats		
Styrene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Bromoform	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
Bromobenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
sec-Butylbenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
n-Butylbenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-07 Matrix: Aqueous Date Collected: 12/27/23 08:38
Sample ID: GP-12 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/04/24	ats	01/04/24	ats		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/04/24	ats	01/04/24	ats		
Hexachloroethane	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Naphthalene	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/04/24	ats	01/04/24	ats		
Surrogates:										
1,2-Dichloroethane-d4	101	%	68-133	1	01/04/24	ats	01/04/24	ats		
Toluene-d8	110	%	75-120	1	01/04/24	ats	01/04/24	ats		
4-Bromofluorobenzene	97	%	69-119	1	01/04/24	ats	01/04/24	ats		
1,2-Dichlorobenzene-d4	103	%	72-127	1	01/04/24	ats	01/04/24	ats		
WET CHEMISTRY										
Analysis Method: EPA 420.1										
Batch: T145868										
Phenolics	<0.010	mg/L	0.010	1	01/05/24	pn	01/05/24	jm		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-08 Matrix: Aqueous Date Collected: 12/26/23 08:40
Sample ID: GP-12 Duplicate Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	<0.00020	mg/L	0.00020	1	01/03/24	lv	01/04/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Barium	**0.20**	**mg/L**	**0.10**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Cadmium	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Chromium	<0.010	mg/L	0.010	1	01/03/24	lv	01/04/24	acs		
Copper	<0.0040	mg/L	0.0040	1	01/03/24	lv	01/04/24	acs		
Lead	<0.0030	mg/L	0.0030	1	01/03/24	lv	01/04/24	acs		
Selenium	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Silver	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Zinc	<0.050	mg/L	0.050	1	01/03/24	lv	01/04/24	acs		
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145678										
Dichlorodifluoromethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloromethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Vinyl chloride	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromomethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloroethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Trichlorofluoromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diethyl ether	<10	ug/L	10	1	01/03/24	nw	01/03/24	nw		
Tert-butyl alcohol	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw	N	
1,1-Dichloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Acetone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Iodomethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Carbon disulfide	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methyl-tert-butyl ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-08 Matrix: Aqueous Date Collected: 12/26/23 08:40
Sample ID: GP-12 Duplicate Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Methylene chloride	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Acrylonitrile	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
trans-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1-Dichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diisopropyl Ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Butanone	<25	ug/L	25	1	01/03/24	nw	01/03/24	nw		
cis-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Ethyl Ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
Bromochloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrahydrofuran	<90	ug/L	90	1	01/03/24	nw	01/03/24	nw		
Chloroform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Cyclohexane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
Trichloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Dibromomethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Toluene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
2-Hexanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Chlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Ethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-08 Matrix: Aqueous Date Collected: 12/26/23 08:40
Sample ID: GP-12 Duplicate Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
m,p-Xylene	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
o-Xylene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Xylenes, total	<3.0	ug/L	3.0	1	01/03/24	nw	01/03/24	nw		
Styrene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromoform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
sec-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
Hexachloroethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Naphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Surrogates:										
1,2-Dichloroethane-d4	97	%	68-133	1	01/03/24	nw	01/03/24	nw		
Toluene-d8	101	%	75-120	1	01/03/24	nw	01/03/24	nw		
4-Bromofluorobenzene	105	%	69-119	1	01/03/24	nw	01/03/24	nw		
1,2-Dichlorobenzene-d4	98	%	72-127	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-09 Matrix: Aqueous Date Collected: 12/27/23 10:08
Sample ID: GP-13 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	<0.00020	mg/L	0.00020	1	01/03/24	lv	01/04/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	**0.0093**	**mg/L**	**0.0050**	**5**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Barium	**0.35**	**mg/L**	**0.10**	**5**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Cadmium	<0.0050	mg/L	0.0050	5	01/03/24	lv	01/04/24	acs	402.5	
Chromium	<0.010	mg/L	0.010	5	01/03/24	lv	01/04/24	acs		
Copper	<0.020	mg/L	0.020	5	01/03/24	lv	01/04/24	acs	402.5	
Lead	<0.010	mg/L	0.010	5	01/03/24	lv	01/04/24	acs	402.5	
Selenium	<0.010	mg/L	0.010	5	01/03/24	lv	01/04/24	acs	402.5	
Silver	<0.0050	mg/L	0.0050	5	01/03/24	lv	01/04/24	acs	402.5	
Zinc	<0.15	mg/L	0.15	5	01/03/24	lv	01/04/24	acs	402.5	
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145630										
Naphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
2-Methylnaphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthylene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluorene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Phenanthrene	**5.4**	**ug/L**	**2.0**	**5**	**01/02/24**	**kbc**	**01/04/24**	**avl**	**N**	
Anthracene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Pyrene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) anthracene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Chrysene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (b) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (k) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-09 Matrix: Aqueous Date Collected: 12/27/23 10:08
Sample ID: GP-13 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Benzo (a) pyrene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Indeno (1,2,3-cd) pyrene	<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Dibenz (a,h) anthracene	<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (g,h,i) perylene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Surrogates:										
Nitrobenzene-d5	119	%	31-130	5	01/02/24	kbc	01/04/24	avl	N	
2-Fluorobiphenyl	141	%	37-155	5	01/02/24	kbc	01/04/24	avl	N	
Terphenyl-d14	154	%	60-172	5	01/02/24	kbc	01/04/24	avl	N	
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145678										
Dichlorodifluoromethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloromethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Vinyl chloride	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromomethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloroethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Trichlorofluoromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diethyl ether	<10	ug/L	10	1	01/03/24	nw	01/03/24	nw		
Tert-butyl alcohol	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw	N	
1,1-Dichloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Acetone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Iodomethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Carbon disulfide	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methyl-tert-butyl ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methylene chloride	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Acrylonitrile	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
trans-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1-Dichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diisopropyl Ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Butanone	<25	ug/L	25	1	01/03/24	nw	01/03/24	nw		
cis-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Ethyl Ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-09 Matrix: Aqueous Date Collected: 12/27/23 10:08
Sample ID: GP-13 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrahydrofuran	<90	ug/L	90	1	01/03/24	nw	01/03/24	nw		
Chloroform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Cyclohexane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
Trichloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Dibromomethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Toluene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
2-Hexanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Chlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Ethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
m,p-Xylene	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
o-Xylene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Xylenes, total	<3.0	ug/L	3.0	1	01/03/24	nw	01/03/24	nw		
Styrene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromoform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-09 Matrix: Aqueous Date Collected: 12/27/23 10:08
Sample ID: GP-13 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
sec-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
Hexachloroethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Naphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Surrogates:										
1,2-Dichloroethane-d4	100	%	68-133	1	01/03/24	nw	01/03/24	nw		
Toluene-d8	98	%	75-120	1	01/03/24	nw	01/03/24	nw		
4-Bromofluorobenzene	100	%	69-119	1	01/03/24	nw	01/03/24	nw		
1,2-Dichlorobenzene-d4	99	%	72-127	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-10 Matrix: Aqueous Date Collected: 12/27/23 16:50
Sample ID: GP-14 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	**0.00036**	**mg/L**	**0.00020**	**1**	**01/03/24**	**lv**	**01/04/24**	**jma**		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	**0.019**	**mg/L**	**0.0050**	**5**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Barium	**0.75**	**mg/L**	**0.10**	**5**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Cadmium	<0.0050	mg/L	0.0050	5	01/03/24	lv	01/04/24	acs		
Chromium	**0.086**	**mg/L**	**0.010**	**5**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Copper	**0.11**	**mg/L**	**0.020**	**5**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Lead	**0.24**	**mg/L**	**0.010**	**5**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Selenium	**0.028**	**mg/L**	**0.010**	**5**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Silver	<0.0050	mg/L	0.0050	5	01/03/24	lv	01/04/24	acs	402.5	
Zinc	**0.56**	**mg/L**	**0.15**	**5**	**01/03/24**	**lv**	**01/04/24**	**acs**		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145630										
Naphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
2-Methylnaphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthylene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluorene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Phenanthrene	**2.0**	**ug/L**	**2.0**	**5**	**01/02/24**	**kbc**	**01/04/24**	**avl**	**N**	
Anthracene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluoranthene	**3.4**	**ug/L**	**1.0**	**5**	**01/02/24**	**kbc**	**01/04/24**	**avl**	**N**	
Pyrene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) anthracene	**2.1**	**ug/L**	**1.0**	**5**	**01/02/24**	**kbc**	**01/04/24**	**avl**	**N**	
Chrysene	**2.0**	**ug/L**	**1.0**	**5**	**01/02/24**	**kbc**	**01/04/24**	**avl**	**N**	
Benzo (b) fluoranthene	**2.0**	**ug/L**	**1.0**	**5**	**01/02/24**	**kbc**	**01/04/24**	**avl**	**N**	
Benzo (k) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-10 Matrix: Aqueous Date Collected: 12/27/23 16:50
Sample ID: GP-14 Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Benzo (a) pyrene		**1.5**	**ug/L**	**1.0**	**5**	**01/02/24**	**kbc**	**01/04/24**	**avl**	**N**	
Indeno (1,2,3-cd) pyrene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Dibenz (a,h) anthracene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (g,h,i) perylene		**1.1**	**ug/L**	**1.0**	**5**	**01/02/24**	**kbc**	**01/04/24**	**avl**	**N**	
Surrogates:											
Nitrobenzene-d5	*	**155**	%	31-130	5	01/02/24	kbc	01/04/24	avl	802, N	
2-Fluorobiphenyl		99	%	37-155	5	01/02/24	kbc	01/04/24	avl	N	
Terphenyl-d14		134	%	60-172	5	01/02/24	kbc	01/04/24	avl	N	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145678											
Dichlorodifluoromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Vinyl chloride		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloroethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Trichlorofluoromethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diethyl ether		<10	ug/L	10	1	01/03/24	nw	01/03/24	nw		
Tert-butyl alcohol		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw	N	
1,1-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Acetone		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Iodomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Carbon disulfide		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methyl-tert-butyl ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methylene chloride		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Acrylonitrile		<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
trans-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1-Dichloroethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diisopropyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Butanone		<25	ug/L	25	1	01/03/24	nw	01/03/24	nw		
cis-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Ethyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-10 Matrix: Aqueous Date Collected: 12/27/23 16:50
Sample ID: GP-14 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrahydrofuran	<90	ug/L	90	1	01/03/24	nw	01/03/24	nw		
Chloroform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Cyclohexane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
Trichloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Dibromomethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Toluene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
2-Hexanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Chlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Ethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
m,p-Xylene	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
o-Xylene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Xylenes, total	<3.0	ug/L	3.0	1	01/03/24	nw	01/03/24	nw		
Styrene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromoform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-10 Matrix: Aqueous Date Collected: 12/27/23 16:50
Sample ID: GP-14 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
sec-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
Hexachloroethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Naphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Surrogates:										
1,2-Dichloroethane-d4	99	%	68-133	1	01/03/24	nw	01/03/24	nw		
Toluene-d8	98	%	75-120	1	01/03/24	nw	01/03/24	nw		
4-Bromofluorobenzene	101	%	69-119	1	01/03/24	nw	01/03/24	nw		
1,2-Dichlorobenzene-d4	99	%	72-127	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-11 Matrix: Aqueous Date Collected: 12/27/23 11:20
Sample ID: GP-15 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	<0.00020	mg/L	0.00020	1	01/03/24	lv	01/04/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	**0.0070**	**mg/L**	**0.0050**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Barium	**0.18**	**mg/L**	**0.10**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Cadmium	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Chromium	<0.010	mg/L	0.010	1	01/03/24	lv	01/04/24	acs		
Copper	<0.0040	mg/L	0.0040	1	01/03/24	lv	01/04/24	acs		
Lead	**0.0031**	**mg/L**	**0.0030**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Selenium	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Silver	**0.0095**	**mg/L**	**0.0010**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Zinc	<0.050	mg/L	0.050	1	01/03/24	lv	01/04/24	acs		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145630										
Naphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
2-Methylnaphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthylene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	112, N	
Fluorene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Phenanthrene	<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Anthracene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Pyrene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) anthracene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Chrysene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (b) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (k) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-11 Matrix: Aqueous Date Collected: 12/27/23 11:20
Sample ID: GP-15 Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Benzo (a) pyrene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Indeno (1,2,3-cd) pyrene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Dibenz (a,h) anthracene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (g,h,i) perylene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Surrogates:											
Nitrobenzene-d5	*	**164**	%	31-130	5	01/02/24	kbc	01/04/24	avl	312, N	
2-Fluorobiphenyl		112	%	37-155	5	01/02/24	kbc	01/04/24	avl	N	
Terphenyl-d14	*	**225**	%	60-172	5	01/02/24	kbc	01/04/24	avl	312, N	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145678											
Dichlorodifluoromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Vinyl chloride		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloroethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Trichlorofluoromethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diethyl ether		<10	ug/L	10	1	01/03/24	nw	01/03/24	nw		
Tert-butyl alcohol		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw	N	
1,1-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Acetone		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Iodomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Carbon disulfide		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methyl-tert-butyl ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methylene chloride		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Acrylonitrile		<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
trans-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1-Dichloroethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diisopropyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Butanone		<25	ug/L	25	1	01/03/24	nw	01/03/24	nw		
cis-1,2-Dichloroethene		**8.2**	**ug/L**	**1.0**	**1**	**01/03/24**	**nw**	**01/03/24**	**nw**		
t-Butyl Ethyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-11 Matrix: Aqueous Date Collected: 12/27/23 11:20
Sample ID: GP-15 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrahydrofuran	<90	ug/L	90	1	01/03/24	nw	01/03/24	nw		
Chloroform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Cyclohexane	**10**	**ug/L**	**5.0**	**1**	**01/03/24**	**nw**	**01/03/24**	**nw**	**N**	
Trichloroethene	**5.4**	**ug/L**	**1.0**	**1**	**01/03/24**	**nw**	**01/03/24**	**nw**		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Dibromomethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Toluene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
2-Hexanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Chlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Ethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
m,p-Xylene	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
o-Xylene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Xylenes, total	<3.0	ug/L	3.0	1	01/03/24	nw	01/03/24	nw		
Styrene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromoform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-11 Matrix: Aqueous Date Collected: 12/27/23 11:20
Sample ID: GP-15 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
sec-Butylbenzene	**1.7**	**ug/L**	**1.0**	**1**	**01/03/24**	**nw**	**01/03/24**	**nw**		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Butylbenzene	**2.0**	**ug/L**	**1.0**	**1**	**01/03/24**	**nw**	**01/03/24**	**nw**		
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
Hexachloroethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Naphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Surrogates:										
1,2-Dichloroethane-d4	103	%	68-133	1	01/03/24	nw	01/03/24	nw		
Toluene-d8	99	%	75-120	1	01/03/24	nw	01/03/24	nw		
4-Bromofluorobenzene	95	%	69-119	1	01/03/24	nw	01/03/24	nw		
1,2-Dichlorobenzene-d4	101	%	72-127	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-12 Matrix: Aqueous Date Collected: 12/27/23 14:01
Sample ID: GP-17 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	<0.00020	mg/L	0.00020	1	01/03/24	lv	01/04/24	jma		
METALS, TOTAL										
Analysis Method: EPA 1631E										
Batch: T145609										
Mercury	**50**	**ng/L**	**0.50**	**1**	**01/02/24**	**acs**	**01/03/24**	**acs**		
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Barium	**0.27**	**mg/L**	**0.10**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Cadmium	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Chromium	<0.010	mg/L	0.010	1	01/03/24	lv	01/04/24	acs		
Copper	**0.0065**	**mg/L**	**0.0040**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Lead	**0.023**	**mg/L**	**0.0030**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Molybdenum	<0.050	mg/L	0.050	1	01/03/24	jm	01/31/24	acs		
Nickel	<0.020	mg/L	0.020	1	01/03/24	jm	01/31/24	acs		
Selenium	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Silver	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Zinc	<0.050	mg/L	0.050	1	01/03/24	lv	01/04/24	acs		
WET CHEMISTRY										
Analysis Method: EPA 1664B										
Batch: T145679										
Oil & Grease (HEM)	<5.0	mg/L	5.0	0.9572676	01/03/24	kbc	01/04/24	kbc		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-12 Matrix: Aqueous Date Collected: 12/27/23 14:01
Sample ID: GP-17 Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8270E											
Batch: T145630											
Naphthalene		<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
2-Methylnaphthalene		**14**	**ug/L**	**5.0**	**10**	**01/02/24**	**kbc**	**01/05/24**	**avl**	**N**	
Acenaphthylene		<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthene		<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	112, N	
Fluorene		<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Phenanthrene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Anthracene		<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluoranthene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Pyrene		<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) anthracene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Chrysene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (b) fluoranthene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (k) fluoranthene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) pyrene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Indeno (1,2,3-cd) pyrene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Dibenz (a,h) anthracene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (g,h,i) perylene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Surrogates:											
Nitrobenzene-d5	*	**198**	%	31-130	5	01/02/24	kbc	01/04/24	avl	312, N	
2-Fluorobiphenyl		101	%	37-155	5	01/02/24	kbc	01/04/24	avl	N	
Terphenyl-d14	*	**175**	%	60-172	5	01/02/24	kbc	01/04/24	avl	312, N	
PESTICIDES/PCBS											
Analysis Method: EPA 608											
Batch: T145746											
Aroclor-1016		<0.10	ug/L	0.10	1	01/04/24	kbc	01/08/24	ahr	N	
Aroclor-1221		<0.10	ug/L	0.10	1	01/04/24	kbc	01/08/24	ahr	N	
Aroclor-1232		<0.10	ug/L	0.10	1	01/04/24	kbc	01/08/24	ahr	N	
Aroclor-1242		<0.10	ug/L	0.10	1	01/04/24	kbc	01/08/24	ahr	N	
Aroclor-1248		<0.10	ug/L	0.10	1	01/04/24	kbc	01/08/24	ahr	N	
Aroclor-1254		<0.10	ug/L	0.10	1	01/04/24	kbc	01/08/24	ahr	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-12 Matrix: Aqueous Date Collected: 12/27/23 14:01
Sample ID: GP-17 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
PESTICIDES/PCBS										
Aroclor-1260	<0.10	ug/L	0.10	1	01/04/24	kbc	01/08/24	ahr	N	
4,4'-DDT	<0.020	ug/L	0.020	1	01/02/24	kbc	01/02/24	av	N	
4,4'-DDE	<0.10	ug/L	0.10	1	01/02/24	kbc	01/02/24	av	N	
4,4'-DDD	<0.10	ug/L	0.10	1	01/02/24	kbc	01/02/24	av	N	
Aldrin	<0.010	ug/L	0.010	1	01/02/24	kbc	01/02/24	av	N	
alpha-BHC	<0.050	ug/L	0.050	1	01/02/24	kbc	01/02/24	av	N	
alpha-Chlordane	<0.011	ug/L	0.011	1	01/02/24	kbc	01/02/24	av	N	
beta-BHC	<0.020	ug/L	0.020	1	01/02/24	kbc	01/02/24	av	N	
Chlordane	<0.030	ug/L	0.030	1	01/02/24	kbc	01/02/24	av	N	
delta-BHC	<0.050	ug/L	0.050	1	01/02/24	kbc	01/02/24	av	N	
Dieldrin	<0.020	ug/L	0.020	1	01/02/24	kbc	01/02/24	av	N	
Endosulfan I	<0.030	ug/L	0.030	1	01/02/24	kbc	01/02/24	av	N	
Endosulfan II	<0.030	ug/L	0.030	1	01/02/24	kbc	01/02/24	av	N	
Endosulfan sulfate	<0.050	ug/L	0.050	1	01/02/24	kbc	01/02/24	av	N	
Endrin	<0.020	ug/L	0.020	1	01/02/24	kbc	01/02/24	av	N	
Endrin aldehyde	<0.020	ug/L	0.020	1	01/02/24	kbc	01/02/24	av	N	
Endrin ketone	<0.020	ug/L	0.020	1	01/02/24	kbc	01/02/24	av	N	
gamma-BHC (Lindane)	<0.030	ug/L	0.030	1	01/02/24	kbc	01/02/24	av	N	
gamma-Chlordane	<0.010	ug/L	0.010	1	01/02/24	kbc	01/02/24	av	N	
Heptachlor	<0.010	ug/L	0.010	1	01/02/24	kbc	01/02/24	av	N	
Heptachlor epoxide	<0.010	ug/L	0.010	1	01/02/24	kbc	01/02/24	av	N	
Methoxychlor	<0.50	ug/L	0.50	1	01/02/24	kbc	01/02/24	av	N	
Toxaphene	<1.0	ug/L	1.0	1	01/02/24	kbc	01/02/24	av	N	
Surrogates:										
Tetrachloro-m-xylene	55	%	18-105	1	01/04/24	kbc	01/08/24	ahr	N	
Tetrachloro-m-xylene	75	%	34-106	1	01/02/24	kbc	01/02/24	av	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-12 Matrix: Aqueous Date Collected: 12/27/23 14:01
Sample ID: GP-17 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145860										
Dichlorodifluoromethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Chloromethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Vinyl chloride	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Bromomethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Chloroethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Trichlorofluoromethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Diethyl ether	<10	ug/L	10	1	01/08/24	ats	01/08/24	ats		
Tert-butyl alcohol	<50	ug/L	50	1	01/08/24	ats	01/08/24	ats	N	
1,1-Dichloroethene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Acetone	<50	ug/L	50	1	01/08/24	ats	01/08/24	ats		
Iodomethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Carbon disulfide	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Methyl-tert-butyl ether	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Methylene chloride	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Acrylonitrile	<2.0	ug/L	2.0	1	01/08/24	ats	01/08/24	ats		
trans-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1-Dichloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Diisopropyl Ether	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
2-Butanone	<25	ug/L	25	1	01/08/24	ats	01/08/24	ats		
cis-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
t-Butyl Ethyl Ether	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats	N	
Bromochloromethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Tetrahydrofuran	<90	ug/L	90	1	01/08/24	ats	01/08/24	ats		
Chloroform	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Benzene	**40**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Cyclohexane	**170**	**ug/L**	**5.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**	**N**	
Trichloroethene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-12 Matrix: Aqueous Date Collected: 12/27/23 14:01
Sample ID: GP-17 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Dibromomethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/08/24	ats	01/08/24	ats		
Toluene	**6.7**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
2-Hexanone	<50	ug/L	50	1	01/08/24	ats	01/08/24	ats		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Chlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Ethylbenzene	**3.0**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
m,p-Xylene	**6.3**	**ug/L**	**2.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
o-Xylene	**1.3**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
Xylenes, total	**7.6**	**ug/L**	**3.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
Styrene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Bromoform	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Isopropylbenzene	**11**	**ug/L**	**5.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Bromobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
n-Propylbenzene	**17**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
sec-Butylbenzene	**2.4**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
n-Butylbenzene	**3.2**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-12 Matrix: Aqueous Date Collected: 12/27/23 14:01
Sample ID: GP-17 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
1,2,3-Trimethylbenzene	**3.1**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**	**N**	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/08/24	ats	01/08/24	ats		
Hexachloroethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Naphthalene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
2-Methylnaphthalene	**14**	**ug/L**	**5.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
Surrogates:										
1,2-Dichloroethane-d4	94	%	68-133	1	01/08/24	ats	01/08/24	ats		
Toluene-d8	104	%	75-120	1	01/08/24	ats	01/08/24	ats		
4-Bromofluorobenzene	93	%	69-119	1	01/08/24	ats	01/08/24	ats		
1,2-Dichlorobenzene-d4	98	%	72-127	1	01/08/24	ats	01/08/24	ats		
WET CHEMISTRY										
Analysis Method: EPA 420.1										
Batch: T145868										
Phenolics	**0.11**	**mg/L**	**0.010**	**1**	**01/05/24**	**pn**	**01/05/24**	**jm**		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-13 Matrix: Aqueous Date Collected: 12/27/23 14:48
Sample ID: GP-18 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	<0.00020	mg/L	0.00020	1	01/03/24	lv	01/04/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Barium	**0.16**	**mg/L**	**0.10**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Cadmium	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Chromium	<0.010	mg/L	0.010	1	01/03/24	lv	01/04/24	acs		
Copper	**0.0073**	**mg/L**	**0.0040**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Lead	**0.11**	**mg/L**	**0.0030**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Selenium	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Silver	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Zinc	<0.050	mg/L	0.050	1	01/03/24	lv	01/04/24	acs		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145630										
Naphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
2-Methylnaphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthylene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	112, N	
Fluorene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Phenanthrene	<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Anthracene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Pyrene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) anthracene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Chrysene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (b) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (k) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-13 Matrix: Aqueous Date Collected: 12/27/23 14:48
Sample ID: GP-18 Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Benzo (a) pyrene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Indeno (1,2,3-cd) pyrene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Dibenz (a,h) anthracene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (g,h,i) perylene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Surrogates:											
Nitrobenzene-d5	*	**314**	%	31-130	5	01/02/24	kbc	01/04/24	avl	313, N	
2-Fluorobiphenyl		137	%	37-155	5	01/02/24	kbc	01/04/24	avl	N	
Terphenyl-d14	*	**322**	%	60-172	5	01/02/24	kbc	01/04/24	avl	313, N	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145860											
Dichlorodifluoromethane		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Chloromethane		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Vinyl chloride		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Bromomethane		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Chloroethane		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Trichlorofluoromethane		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Diethyl ether		<10	ug/L	10	1	01/08/24	ats	01/08/24	ats		
Tert-butyl alcohol		<50	ug/L	50	1	01/08/24	ats	01/08/24	ats	N	
1,1-Dichloroethene		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Acetone		<50	ug/L	50	1	01/08/24	ats	01/08/24	ats		
Iodomethane		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Carbon disulfide		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Methyl-tert-butyl ether		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Methylene chloride		**5.7**	**ug/L**	**5.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
Acrylonitrile		<2.0	ug/L	2.0	1	01/08/24	ats	01/08/24	ats		
trans-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1-Dichloroethane		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Diisopropyl Ether		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
2-Butanone		<25	ug/L	25	1	01/08/24	ats	01/08/24	ats		
cis-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
t-Butyl Ethyl Ether		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-13 Matrix: Aqueous Date Collected: 12/27/23 14:48
Sample ID: GP-18 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Tetrahydrofuran	<90	ug/L	90	1	01/08/24	ats	01/08/24	ats		
Chloroform	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Benzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Cyclohexane	**28**	**ug/L**	**5.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**	**N**	
Trichloroethene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Dibromomethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/08/24	ats	01/08/24	ats		
Toluene	**1.9**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
2-Hexanone	<50	ug/L	50	1	01/08/24	ats	01/08/24	ats		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Chlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Ethylbenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
m,p-Xylene	<2.0	ug/L	2.0	1	01/08/24	ats	01/08/24	ats		
o-Xylene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Xylenes, total	<3.0	ug/L	3.0	1	01/08/24	ats	01/08/24	ats		
Styrene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Bromoform	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-13 Matrix: Aqueous Date Collected: 12/27/23 14:48
Sample ID: GP-18 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Bromobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
n-Propylbenzene	**2.4**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
sec-Butylbenzene	**1.5**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
n-Butylbenzene	**1.1**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/08/24	ats	01/08/24	ats		
Hexachloroethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Naphthalene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
2-Methylnaphthalene	**10**	**ug/L**	**5.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
Surrogates:										
1,2-Dichloroethane-d4	94	%	68-133	1	01/08/24	ats	01/08/24	ats		
Toluene-d8	108	%	75-120	1	01/08/24	ats	01/08/24	ats		
4-Bromofluorobenzene	93	%	69-119	1	01/08/24	ats	01/08/24	ats		
1,2-Dichlorobenzene-d4	99	%	72-127	1	01/08/24	ats	01/08/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-14 Matrix: Aqueous Date Collected: 12/27/23 16:01
Sample ID: GP-19 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	<0.00020	mg/L	0.00020	1	01/03/24	lv	01/04/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Barium	<0.10	mg/L	0.10	1	01/03/24	lv	01/04/24	acs		
Cadmium	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Chromium	<0.010	mg/L	0.010	1	01/03/24	lv	01/04/24	acs		
Copper	<0.0040	mg/L	0.0040	1	01/03/24	lv	01/04/24	acs		
Lead	**0.0031**	**mg/L**	**0.0030**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Selenium	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Silver	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Zinc	<0.050	mg/L	0.050	1	01/03/24	lv	01/04/24	acs		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									407	
Analysis Method: EPA 8270E										
Batch: T145630										
Naphthalene	<5.0	ug/L	5.0	10	01/02/24	kbc	01/04/24	avl	N	
2-Methylnaphthalene	**200**	**ug/L**	**32**	**200**	**01/02/24**	**kbc**	**01/05/24**	**avl**	**N**	
Acenaphthylene	<5.0	ug/L	5.0	10	01/02/24	kbc	01/04/24	avl	N	
Acenaphthene	**12**	**ug/L**	**5.0**	**10**	**01/02/24**	**kbc**	**01/04/24**	**avl**	**106, N**	
Fluorene	<32	ug/L	32	200	01/02/24	kbc	01/05/24	avl	N	
Phenanthrene	**38**	**ug/L**	**32**	**200**	**01/02/24**	**kbc**	**01/05/24**	**avl**	**N**	
Anthracene	<5.0	ug/L	5.0	10	01/02/24	kbc	01/04/24	avl	N	
Fluoranthene	<1.6	ug/L	1.6	10	01/02/24	kbc	01/04/24	avl	N	
Pyrene	<5.0	ug/L	5.0	10	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) anthracene	<1.6	ug/L	1.6	10	01/02/24	kbc	01/04/24	avl	N	
Chrysene	<1.6	ug/L	1.6	10	01/02/24	kbc	01/04/24	avl	N	
Benzo (b) fluoranthene	<1.6	ug/L	1.6	10	01/02/24	kbc	01/04/24	avl	N	
Benzo (k) fluoranthene	<1.6	ug/L	1.6	10	01/02/24	kbc	01/04/24	avl	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-14 Matrix: Aqueous Date Collected: 12/27/23 16:01
Sample ID: GP-19 Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										407	
Benzo (a) pyrene		<1.6	ug/L	1.6	10	01/02/24	kbc	01/04/24	avl	N	
Indeno (1,2,3-cd) pyrene		<2.0	ug/L	2.0	10	01/02/24	kbc	01/04/24	avl	N	
Dibenz (a,h) anthracene		<2.0	ug/L	2.0	10	01/02/24	kbc	01/04/24	avl	N	
Benzo (g,h,i) perylene		<1.6	ug/L	1.6	10	01/02/24	kbc	01/04/24	avl	N	
Surrogates:											
Nitrobenzene-d5	*		%	31-130	10	01/02/24	kbc	01/04/24	avl	302, N	
2-Fluorobiphenyl		103	%	37-155	10	01/02/24	kbc	01/04/24	avl	N	
Terphenyl-d14		111	%	60-172	10	01/02/24	kbc	01/04/24	avl	N	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145860											
Dichlorodifluoromethane		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Chloromethane		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Vinyl chloride		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Bromomethane		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Chloroethane		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Trichlorofluoromethane		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Diethyl ether		<10	ug/L	10	1	01/08/24	ats	01/08/24	ats		
Tert-butyl alcohol		<50	ug/L	50	1	01/08/24	ats	01/08/24	ats	N	
1,1-Dichloroethene		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Acetone		<50	ug/L	50	1	01/08/24	ats	01/08/24	ats		
Iodomethane		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Carbon disulfide		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Methyl-tert-butyl ether		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Methylene chloride		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Acrylonitrile		<2.0	ug/L	2.0	1	01/08/24	ats	01/08/24	ats		
trans-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1-Dichloroethane		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Diisopropyl Ether		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
2-Butanone		<25	ug/L	25	1	01/08/24	ats	01/08/24	ats		
cis-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
t-Butyl Ethyl Ether		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-14 Matrix: Aqueous Date Collected: 12/27/23 16:01
Sample ID: GP-19 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Tetrahydrofuran	<90	ug/L	90	1	01/08/24	ats	01/08/24	ats		
Chloroform	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Benzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Cyclohexane	**35**	**ug/L**	**5.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**	**N**	
Trichloroethene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Dibromomethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/08/24	ats	01/08/24	ats		
Toluene	**1.0**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
2-Hexanone	<50	ug/L	50	1	01/08/24	ats	01/08/24	ats		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Chlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Ethylbenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
m,p-Xylene	**2.0**	**ug/L**	**2.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
o-Xylene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Xylenes, total	<3.0	ug/L	3.0	1	01/08/24	ats	01/08/24	ats		
Styrene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Bromoform	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Isopropylbenzene	**14**	**ug/L**	**5.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-14 Matrix: Aqueous Date Collected: 12/27/23 16:01
Sample ID: GP-19 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Bromobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
n-Propylbenzene	**25**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
1,3,5-Trimethylbenzene	**6.4**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
sec-Butylbenzene	**6.4**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
n-Butylbenzene	**10**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
1,2,3-Trimethylbenzene	**4.6**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**	**N**	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/08/24	ats	01/08/24	ats		
Hexachloroethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Naphthalene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
2-Methylnaphthalene	**280**	**ug/L**	**50**	**10**	**01/08/24**	**ats**	**01/08/24**	**ats**		
Surrogates:										
1,2-Dichloroethane-d4	95	%	68-133	1	01/08/24	ats	01/08/24	ats		
1,2-Dichloroethane-d4	96	%	68-133	10	01/08/24	ats	01/08/24	ats		
Toluene-d8	106	%	75-120	1	01/08/24	ats	01/08/24	ats		
Toluene-d8	106	%	75-120	10	01/08/24	ats	01/08/24	ats		
4-Bromofluorobenzene	96	%	69-119	1	01/08/24	ats	01/08/24	ats		
4-Bromofluorobenzene	97	%	69-119	10	01/08/24	ats	01/08/24	ats		
1,2-Dichlorobenzene-d4	100	%	72-127	1	01/08/24	ats	01/08/24	ats		
1,2-Dichlorobenzene-d4	99	%	72-127	10	01/08/24	ats	01/08/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-15 Matrix: Aqueous Date Collected: 12/27/23 16:03
Sample ID: GP-19 Duplicate Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	<0.00020	mg/L	0.00020	1	01/03/24	lv	01/04/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Barium	<0.10	mg/L	0.10	1	01/03/24	lv	01/04/24	acs		
Cadmium	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Chromium	<0.010	mg/L	0.010	1	01/03/24	lv	01/04/24	acs		
Copper	**0.0043**	**mg/L**	**0.0040**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Lead	<0.0030	mg/L	0.0030	1	01/03/24	lv	01/04/24	acs		
Selenium	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Silver	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Zinc	<0.050	mg/L	0.050	1	01/03/24	lv	01/04/24	acs		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									407	
Analysis Method: EPA 8270E										
Batch: T145630										
Naphthalene	<5.0	ug/L	5.0	10	01/02/24	kbc	01/04/24	avl	N	
2-Methylnaphthalene	**210**	**ug/L**	**34**	**200**	**01/02/24**	**kbc**	**01/05/24**	**avl**	**N**	
Acenaphthylene	<5.0	ug/L	5.0	10	01/02/24	kbc	01/04/24	avl	N	
Acenaphthene	**13**	**ug/L**	**5.0**	**10**	**01/02/24**	**kbc**	**01/04/24**	**avl**	**106, N**	
Fluorene	**17**	**ug/L**	**5.0**	**10**	**01/02/24**	**kbc**	**01/04/24**	**avl**	**N**	
Phenanthrene	**37**	**ug/L**	**34**	**200**	**01/02/24**	**kbc**	**01/05/24**	**avl**	**N**	
Anthracene	<5.0	ug/L	5.0	10	01/02/24	kbc	01/04/24	avl	N	
Fluoranthene	<1.7	ug/L	1.7	10	01/02/24	kbc	01/04/24	avl	N	
Pyrene	<5.0	ug/L	5.0	10	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) anthracene	<1.7	ug/L	1.7	10	01/02/24	kbc	01/04/24	avl	N	
Chrysene	<1.7	ug/L	1.7	10	01/02/24	kbc	01/04/24	avl	N	
Benzo (b) fluoranthene	<1.7	ug/L	1.7	10	01/02/24	kbc	01/04/24	avl	N	
Benzo (k) fluoranthene	<1.7	ug/L	1.7	10	01/02/24	kbc	01/04/24	avl	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-15 Matrix: Aqueous Date Collected: 12/27/23 16:03
Sample ID: GP-19 Duplicate Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										407	
Benzo (a) pyrene		<1.7	ug/L	1.7	10	01/02/24	kbc	01/04/24	avl	N	
Indeno (1,2,3-cd) pyrene		<2.0	ug/L	2.0	10	01/02/24	kbc	01/04/24	avl	N	
Dibenz (a,h) anthracene		<2.0	ug/L	2.0	10	01/02/24	kbc	01/04/24	avl	N	
Benzo (g,h,i) perylene		<1.7	ug/L	1.7	10	01/02/24	kbc	01/04/24	avl	N	
Surrogates:											
Nitrobenzene-d5	*		%	31-130	10	01/02/24	kbc	01/04/24	avl	302, N	
2-Fluorobiphenyl		89	%	37-155	10	01/02/24	kbc	01/04/24	avl	N	
Terphenyl-d14		94	%	60-172	10	01/02/24	kbc	01/04/24	avl	N	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145860											
Dichlorodifluoromethane		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Chloromethane		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Vinyl chloride		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Bromomethane		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Chloroethane		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Trichlorofluoromethane		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Diethyl ether		<10	ug/L	10	1	01/08/24	ats	01/08/24	ats		
Tert-butyl alcohol		<50	ug/L	50	1	01/08/24	ats	01/08/24	ats	N	
1,1-Dichloroethene		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Acetone		<50	ug/L	50	1	01/08/24	ats	01/08/24	ats		
Iodomethane		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Carbon disulfide		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Methyl-tert-butyl ether		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Methylene chloride		**10**	**ug/L**	**5.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
Acrylonitrile		<2.0	ug/L	2.0	1	01/08/24	ats	01/08/24	ats		
trans-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1-Dichloroethane		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Diisopropyl Ether		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
2-Butanone		<25	ug/L	25	1	01/08/24	ats	01/08/24	ats		
cis-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
t-Butyl Ethyl Ether		<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-15 Matrix: Aqueous Date Collected: 12/27/23 16:03
Sample ID: GP-19 Duplicate Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Tetrahydrofuran	<90	ug/L	90	1	01/08/24	ats	01/08/24	ats		
Chloroform	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Benzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Cyclohexane	**38**	**ug/L**	**5.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**	**N**	
Trichloroethene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Dibromomethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/08/24	ats	01/08/24	ats		
Toluene	**1.6**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
2-Hexanone	<50	ug/L	50	1	01/08/24	ats	01/08/24	ats		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Chlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Ethylbenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
m,p-Xylene	**2.3**	**ug/L**	**2.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
o-Xylene	**1.0**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
Xylenes, total	**3.3**	**ug/L**	**3.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
Styrene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Bromoform	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Isopropylbenzene	**15**	**ug/L**	**5.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-15 Matrix: Aqueous Date Collected: 12/27/23 16:03
Sample ID: GP-19 Duplicate Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
Bromobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
n-Propylbenzene	**27**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
1,3,5-Trimethylbenzene	**7.3**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
sec-Butylbenzene	**6.4**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
n-Butylbenzene	**10**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**		
1,2,3-Trimethylbenzene	**5.2**	**ug/L**	**1.0**	**1**	**01/08/24**	**ats**	**01/08/24**	**ats**	**N**	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/08/24	ats	01/08/24	ats		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/08/24	ats	01/08/24	ats		
Hexachloroethane	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
Naphthalene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/08/24	ats	01/08/24	ats		
2-Methylnaphthalene	**300**	**ug/L**	**50**	**10**	**01/08/24**	**ats**	**01/08/24**	**ats**		
Surrogates:										
1,2-Dichloroethane-d4	95	%	68-133	1	01/08/24	ats	01/08/24	ats		
1,2-Dichloroethane-d4	96	%	68-133	10	01/08/24	ats	01/08/24	ats		
Toluene-d8	107	%	75-120	1	01/08/24	ats	01/08/24	ats		
Toluene-d8	106	%	75-120	10	01/08/24	ats	01/08/24	ats		
4-Bromofluorobenzene	96	%	69-119	1	01/08/24	ats	01/08/24	ats		
4-Bromofluorobenzene	95	%	69-119	10	01/08/24	ats	01/08/24	ats		
1,2-Dichlorobenzene-d4	101	%	72-127	1	01/08/24	ats	01/08/24	ats		
1,2-Dichlorobenzene-d4	99	%	72-127	10	01/08/24	ats	01/08/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-16 Matrix: Aqueous Date Collected: 12/27/23 16:26
Sample ID: GP-21 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	<0.00020	mg/L	0.00020	1	01/03/24	lv	01/04/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Barium	<0.10	mg/L	0.10	1	01/03/24	lv	01/04/24	acs		
Cadmium	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Chromium	<0.010	mg/L	0.010	1	01/03/24	lv	01/04/24	acs		
Copper	<0.0040	mg/L	0.0040	1	01/03/24	lv	01/04/24	acs		
Lead	<0.0030	mg/L	0.0030	1	01/03/24	lv	01/04/24	acs		
Selenium	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Silver	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Zinc	<0.050	mg/L	0.050	1	01/03/24	lv	01/04/24	acs		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145630										
Naphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
2-Methylnaphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthylene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluorene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Phenanthrene	<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Anthracene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Pyrene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) anthracene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Chrysene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (b) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (k) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-16 Matrix: Aqueous Date Collected: 12/27/23 16:26
Sample ID: GP-21 Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Benzo (a) pyrene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Indeno (1,2,3-cd) pyrene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Dibenz (a,h) anthracene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (g,h,i) perylene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Surrogates:											
Nitrobenzene-d5	*	**158**	%	31-130	5	01/02/24	kbc	01/04/24	avl	802, N	
2-Fluorobiphenyl		96	%	37-155	5	01/02/24	kbc	01/04/24	avl	N	
Terphenyl-d14		93	%	60-172	5	01/02/24	kbc	01/04/24	avl	N	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145678											
Dichlorodifluoromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Vinyl chloride		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloroethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Trichlorofluoromethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diethyl ether		<10	ug/L	10	1	01/03/24	nw	01/03/24	nw		
Tert-butyl alcohol		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw	N	
1,1-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Acetone		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Iodomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Carbon disulfide		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methyl-tert-butyl ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methylene chloride		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Acrylonitrile		<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
trans-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1-Dichloroethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diisopropyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Butanone		<25	ug/L	25	1	01/03/24	nw	01/03/24	nw		
cis-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Ethyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-16 Matrix: Aqueous Date Collected: 12/27/23 16:26
Sample ID: GP-21 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrahydrofuran	<90	ug/L	90	1	01/03/24	nw	01/03/24	nw		
Chloroform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Cyclohexane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
Trichloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Dibromomethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Toluene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
2-Hexanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Chlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Ethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
m,p-Xylene	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
o-Xylene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Xylenes, total	<3.0	ug/L	3.0	1	01/03/24	nw	01/03/24	nw		
Styrene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromoform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-16 Matrix: Aqueous Date Collected: 12/27/23 16:26
Sample ID: GP-21 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
sec-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
Hexachloroethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Naphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Surrogates:										
1,2-Dichloroethane-d4	98	%	68-133	1	01/03/24	nw	01/03/24	nw		
Toluene-d8	98	%	75-120	1	01/03/24	nw	01/03/24	nw		
4-Bromofluorobenzene	103	%	69-119	1	01/03/24	nw	01/03/24	nw		
1,2-Dichlorobenzene-d4	97	%	72-127	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-17 Matrix: Aqueous Date Collected: 12/27/23 16:56
Sample ID: GP-22 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
METALS, TOTAL										
Analysis Method: EPA 7470A										
Batch: T145700										
Mercury	<0.00020	mg/L	0.00020	1	01/03/24	lv	01/04/24	jma		
METALS, TOTAL										
Analysis Method: EPA 6020B										
Batch: T145702										
Arsenic	**0.071**	**mg/L**	**0.0050**	**1**	**01/03/24**	**lv**	**01/04/24**	**acs**		
Barium	<0.10	mg/L	0.10	1	01/03/24	lv	01/04/24	acs		
Cadmium	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Chromium	<0.010	mg/L	0.010	1	01/03/24	lv	01/04/24	acs		
Copper	<0.0040	mg/L	0.0040	1	01/03/24	lv	01/04/24	acs		
Lead	<0.0030	mg/L	0.0030	1	01/03/24	lv	01/04/24	acs		
Selenium	<0.0050	mg/L	0.0050	1	01/03/24	lv	01/04/24	acs		
Silver	<0.0010	mg/L	0.0010	1	01/03/24	lv	01/04/24	acs		
Zinc	<0.050	mg/L	0.050	1	01/03/24	lv	01/04/24	acs		
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270E										
Batch: T145630										
Naphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
2-Methylnaphthalene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthylene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Acenaphthene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluorene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Phenanthrene	<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Anthracene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Pyrene	<5.0	ug/L	5.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (a) anthracene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Chrysene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (b) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (k) fluoranthene	<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-17 Matrix: Aqueous Date Collected: 12/27/23 16:56
Sample ID: GP-22 Date Received: 12/29/23 09:45

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Benzo (a) pyrene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Indeno (1,2,3-cd) pyrene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Dibenz (a,h) anthracene		<2.0	ug/L	2.0	5	01/02/24	kbc	01/04/24	avl	N	
Benzo (g,h,i) perylene		<1.0	ug/L	1.0	5	01/02/24	kbc	01/04/24	avl	N	
Surrogates:											
Nitrobenzene-d5	*	**178**	%	31-130	5	01/02/24	kbc	01/04/24	avl	802, N	
2-Fluorobiphenyl		121	%	37-155	5	01/02/24	kbc	01/04/24	avl	N	
Terphenyl-d14		93	%	60-172	5	01/02/24	kbc	01/04/24	avl	N	
VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8260D											
Batch: T145678											
Dichlorodifluoromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloromethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Vinyl chloride		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Chloroethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Trichlorofluoromethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diethyl ether		<10	ug/L	10	1	01/03/24	nw	01/03/24	nw		
Tert-butyl alcohol		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw	N	
1,1-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Acetone		<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Iodomethane		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Carbon disulfide		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methyl-tert-butyl ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Methylene chloride		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Acrylonitrile		<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
trans-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1-Dichloroethane		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Diisopropyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Butanone		<25	ug/L	25	1	01/03/24	nw	01/03/24	nw		
cis-1,2-Dichloroethene		<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Ethyl Ether		<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-17 Matrix: Aqueous Date Collected: 12/27/23 16:56
Sample ID: GP-22 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Bromochloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrahydrofuran	<90	ug/L	90	1	01/03/24	nw	01/03/24	nw		
Chloroform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Cyclohexane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw	N	
Trichloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Dibromomethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Toluene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
2-Hexanone	<50	ug/L	50	1	01/03/24	nw	01/03/24	nw		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Chlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Ethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
m,p-Xylene	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
o-Xylene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Xylenes, total	<3.0	ug/L	3.0	1	01/03/24	nw	01/03/24	nw		
Styrene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromoform	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-17 Matrix: Aqueous Date Collected: 12/27/23 16:56
Sample ID: GP-22 Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
Bromobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
sec-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
n-Butylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/03/24	nw	01/03/24	nw		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/03/24	nw	01/03/24	nw		
Hexachloroethane	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Naphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/03/24	nw	01/03/24	nw		
Surrogates:										
1,2-Dichloroethane-d4	101	%	68-133	1	01/03/24	nw	01/03/24	nw		
Toluene-d8	96	%	75-120	1	01/03/24	nw	01/03/24	nw		
4-Bromofluorobenzene	94	%	69-119	1	01/03/24	nw	01/03/24	nw		
1,2-Dichlorobenzene-d4	100	%	72-127	1	01/03/24	nw	01/03/24	nw		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-18 Matrix: Aqueous Date Collected: 12/26/23 07:30
Sample ID: Trip Blank Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145823										
Dichlorodifluoromethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Chloromethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Vinyl chloride	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Bromomethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Chloroethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Trichlorofluoromethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Diethyl ether	<10	ug/L	10	1	01/05/24	ats	01/05/24	ats		
Tert-butyl alcohol	<50	ug/L	50	1	01/05/24	ats	01/05/24	ats	N	
1,1-Dichloroethene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Acetone	<50	ug/L	50	1	01/05/24	ats	01/05/24	ats		
Iodomethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Carbon disulfide	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Methyl-tert-butyl ether	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Methylene chloride	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Acrylonitrile	<2.0	ug/L	2.0	1	01/05/24	ats	01/05/24	ats		
trans-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,1-Dichloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Diisopropyl Ether	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
2-Butanone	<25	ug/L	25	1	01/05/24	ats	01/05/24	ats		
cis-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
t-Butyl Ethyl Ether	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats	N	
Bromochloromethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Tetrahydrofuran	<90	ug/L	90	1	01/05/24	ats	01/05/24	ats		
Chloroform	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Benzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Cyclohexane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats	N	
Trichloroethene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-18 Matrix: Aqueous Date Collected: 12/26/23 07:30
Sample ID: Trip Blank Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Dibromomethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/05/24	ats	01/05/24	ats		
Toluene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
2-Hexanone	<50	ug/L	50	1	01/05/24	ats	01/05/24	ats		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Chlorobenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Ethylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
m,p-Xylene	<2.0	ug/L	2.0	1	01/05/24	ats	01/05/24	ats		
o-Xylene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Xylenes, total	<3.0	ug/L	3.0	1	01/05/24	ats	01/05/24	ats		
Styrene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Bromoform	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Bromobenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
sec-Butylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
n-Butylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-18 Matrix: Aqueous Date Collected: 12/26/23 07:30
Sample ID: Trip Blank Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/05/24	ats	01/05/24	ats		
Hexachloroethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Naphthalene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Surrogates:										
1,2-Dichloroethane-d4	102	%	68-133	1	01/05/24	ats	01/05/24	ats		
Toluene-d8	107	%	75-120	1	01/05/24	ats	01/05/24	ats		
4-Bromofluorobenzene	101	%	69-119	1	01/05/24	ats	01/05/24	ats		
1,2-Dichlorobenzene-d4	99	%	72-127	1	01/05/24	ats	01/05/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-19 Matrix: Aqueous Date Collected: 12/27/23 08:12
Sample ID: Field Blank Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145823										
Dichlorodifluoromethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Chloromethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Vinyl chloride	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Bromomethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Chloroethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Trichlorofluoromethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Diethyl ether	<10	ug/L	10	1	01/05/24	ats	01/05/24	ats		
Tert-butyl alcohol	<50	ug/L	50	1	01/05/24	ats	01/05/24	ats	N	
1,1-Dichloroethene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Acetone	<50	ug/L	50	1	01/05/24	ats	01/05/24	ats		
Iodomethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Carbon disulfide	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Methyl-tert-butyl ether	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Methylene chloride	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Acrylonitrile	<2.0	ug/L	2.0	1	01/05/24	ats	01/05/24	ats		
trans-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,1-Dichloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Diisopropyl Ether	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
2-Butanone	<25	ug/L	25	1	01/05/24	ats	01/05/24	ats		
cis-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
t-Butyl Ethyl Ether	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats	N	
Bromochloromethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Tetrahydrofuran	<90	ug/L	90	1	01/05/24	ats	01/05/24	ats		
Chloroform	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Benzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Cyclohexane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats	N	
Trichloroethene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-19 Matrix: Aqueous Date Collected: 12/27/23 08:12
Sample ID: Field Blank Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Dibromomethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/05/24	ats	01/05/24	ats		
Toluene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
2-Hexanone	<50	ug/L	50	1	01/05/24	ats	01/05/24	ats		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Chlorobenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Ethylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
m,p-Xylene	<2.0	ug/L	2.0	1	01/05/24	ats	01/05/24	ats		
o-Xylene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Xylenes, total	<3.0	ug/L	3.0	1	01/05/24	ats	01/05/24	ats		
Styrene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Bromoform	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Bromobenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
sec-Butylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
n-Butylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-19 Matrix: Aqueous Date Collected: 12/27/23 08:12
Sample ID: Field Blank Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/05/24	ats	01/05/24	ats		
Hexachloroethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Naphthalene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Surrogates:										
1,2-Dichloroethane-d4	103	%	68-133	1	01/05/24	ats	01/05/24	ats		
Toluene-d8	105	%	75-120	1	01/05/24	ats	01/05/24	ats		
4-Bromofluorobenzene	99	%	69-119	1	01/05/24	ats	01/05/24	ats		
1,2-Dichlorobenzene-d4	100	%	72-127	1	01/05/24	ats	01/05/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-20 Matrix: Aqueous Date Collected: 12/27/23 07:24
Sample ID: Trip Blank Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8260D										
Batch: T145823										
Dichlorodifluoromethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Chloromethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Vinyl chloride	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Bromomethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Chloroethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Trichlorofluoromethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Diethyl ether	<10	ug/L	10	1	01/05/24	ats	01/05/24	ats		
Tert-butyl alcohol	<50	ug/L	50	1	01/05/24	ats	01/05/24	ats	N	
1,1-Dichloroethene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Acetone	<50	ug/L	50	1	01/05/24	ats	01/05/24	ats		
Iodomethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Carbon disulfide	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Methyl-tert-butyl ether	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Methylene chloride	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Acrylonitrile	<2.0	ug/L	2.0	1	01/05/24	ats	01/05/24	ats		
trans-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,1-Dichloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Diisopropyl Ether	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
2-Butanone	<25	ug/L	25	1	01/05/24	ats	01/05/24	ats		
cis-1,2-Dichloroethene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
t-Butyl Ethyl Ether	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats	N	
Bromochloromethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Tetrahydrofuran	<90	ug/L	90	1	01/05/24	ats	01/05/24	ats		
Chloroform	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,1,1-Trichloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Carbon tetrachloride	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Benzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
t-Amyl Methyl Ether	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats	N	
1,2-Dichloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Cyclohexane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats	N	
Trichloroethene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,2-Dichloropropane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-20 Matrix: Aqueous Date Collected: 12/27/23 07:24
Sample ID: Trip Blank Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Dibromomethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Bromodichloromethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
cis-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
4-Methyl-2-pentanone	<50	ug/L	50	1	01/05/24	ats	01/05/24	ats		
Toluene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
trans-1,3-Dichloropropene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,1,2-Trichloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Tetrachloroethene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
2-Hexanone	<50	ug/L	50	1	01/05/24	ats	01/05/24	ats		
Dibromochloromethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
1,2-Dibromoethane (EDB)	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Chlorobenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,1,1,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Ethylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
m,p-Xylene	<2.0	ug/L	2.0	1	01/05/24	ats	01/05/24	ats		
o-Xylene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Xylenes, total	<3.0	ug/L	3.0	1	01/05/24	ats	01/05/24	ats		
Styrene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Bromoform	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Isopropylbenzene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
1,1,2,2-Tetrachloroethane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,2,3-Trichloropropane	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
trans-1,4-Dichloro-2-butene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
Bromobenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
n-Propylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,3,5-Trimethylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
t-Butyl Benzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,2,4-Trimethylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
sec-Butylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
p-Isopropyltoluene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
1,3-Dichlorobenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,4-Dichlorobenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
n-Butylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		

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ANALYTICAL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

Trace ID: 23L1349-20 Matrix: Aqueous Date Collected: 12/27/23 07:24
Sample ID: Trip Blank Date Received: 12/29/23 09:45

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
VOLATILE ORGANIC COMPOUNDS BY GC-MS										
1,2,3-Trimethylbenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats	N	
1,2-Dichlorobenzene	<1.0	ug/L	1.0	1	01/05/24	ats	01/05/24	ats		
1,2-Dibromo-3-chloropropane	<2.0	ug/L	2.0	1	01/05/24	ats	01/05/24	ats		
Hexachloroethane	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
1,2,4-Trichlorobenzene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Naphthalene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
1,2,3-Trichlorobenzene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
2-Methylnaphthalene	<5.0	ug/L	5.0	1	01/05/24	ats	01/05/24	ats		
Surrogates:										
1,2-Dichloroethane-d4	102	%	68-133	1	01/05/24	ats	01/05/24	ats		
Toluene-d8	107	%	75-120	1	01/05/24	ats	01/05/24	ats		
4-Bromofluorobenzene	99	%	69-119	1	01/05/24	ats	01/05/24	ats		
1,2-Dichlorobenzene-d4	101	%	72-127	1	01/05/24	ats	01/05/24	ats		

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QUALITY CONTROL RESULTS

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

QC Batch: T145700
QC Batch Method: EPA 7470A Prep
Analysis Description: Mercury, Total, EPA 7470/7471
Analysis Method: EPA 7470A

METHOD BLANK: T145700-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	mg/L	<0.00020	0.00020	

LABORATORY CONTROL SAMPLE: T145700-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Mercury	mg/L	0.00200	0.00210	105	77-122	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T145700-MSD1

Original: **23L1349-01**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Mercury	mg/L	0	0.00200	0.00194	0.00197	97	98	76-123	2	20	

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

QC Batch: T145609
QC Batch Method: EPA 1631E
Analysis Description: Mercury, Total, Low Level
Analysis Method: EPA 1631E

METHOD BLANK: T145609-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	ng/L	<0.20	0.20	

METHOD BLANK: T145609-BLK2

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	ng/L	<0.20	0.20	

METHOD BLANK: T145609-BLK3

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	ng/L	<0.20	0.20	

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LABORATORY CONTROL SAMPLE: T145609-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Mercury	ng/L	5.00	5.29	106	77-123	

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

QC Batch: T145702
QC Batch Method: EPA 3015 Microwave Assisted Digestions for Liquids

Analysis Description: Chromium, Total
Analysis Method: EPA 6020B

METHOD BLANK: T145702-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Silver	mg/L	<0.0010	0.0010	
Arsenic	mg/L	<0.0050	0.0050	
Barium	mg/L	<0.10	0.10	
Cadmium	mg/L	<0.0010	0.0010	
Chromium	mg/L	<0.010	0.010	
Copper	mg/L	<0.0040	0.0040	
Molybdenum	mg/L	<0.050	0.050	
Nickel	mg/L	<0.020	0.020	
Lead	mg/L	<0.0030	0.0030	
Selenium	mg/L	<0.0050	0.0050	
Zinc	mg/L	<0.050	0.050	

LABORATORY CONTROL SAMPLE: T145702-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Silver	mg/L	0.0278	0.0310	112	80-120	
Arsenic	mg/L	0.0556	0.0573	103	80-120	
Barium	mg/L	0.889	0.765	86	80-120	
Cadmium	mg/L	0.0278	0.0301	108	80-120	
Chromium	mg/L	0.0278	0.0292	105	80-120	
Copper	mg/L	0.889	0.894	101	80-120	
Molybdenum	mg/L	0.889	0.876	98	80-120	
Nickel	mg/L	0.889	0.857	96	80-120	
Lead	mg/L	0.0556	0.0536	96	80-120	
Selenium	mg/L	0.0556	0.0546	98	80-120	
Zinc	mg/L	0.889	0.905	102	80-120	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T145702-MSD1 Original: **23L1349-07**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Silver	mg/L	0	0.0278	0.0286	0.0275	103	99	75-125	4	20	
Arsenic	mg/L	0.00115	0.0556	0.0637	0.0622	113	110	75-125	2	20	
Barium	**mg/L**	**0.192**	**0.889**	**0.819**	**0.779**	**71**	**66**	**75-125**	**7**	**20**	**205**
Cadmium	mg/L	0	0.0278	0.0259	0.0241	93	87	75-125	7	20	
Chromium	mg/L	0	0.0278	0.0300	0.0280	108	101	75-125	7	20	
Copper	mg/L	0	0.889	0.858	0.822	96	92	75-125	4	20	
Molybdenum	mg/L	0.00190	0.889	1.04	0.979	116	110	75-125	6	20	
Nickel	mg/L	0	0.889	0.863	0.818	97	92	75-125	5	20	
Lead	mg/L	0	0.0556	0.0508	0.0482	91	87	75-125	5	20	
Selenium	mg/L	0.000633	0.0556	0.0591	0.0575	105	102	75-125	3	20	
Zinc	mg/L	0	0.889	0.865	0.832	97	94	75-125	4	20	

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

QC Batch: T145679
QC Batch Method: EPA 1664B
Analysis Description: Oil and Grease, Gravimetric
Analysis Method: EPA 1664B

METHOD BLANK: T145679-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Oil & Grease (HEM)	mg/L	<5.0	5.0	

LABORATORY CONTROL SAMPLE: T145679-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Oil & Grease (HEM)	mg/L	40.0	41.9	105	78-114	

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

QC Batch: T145626
QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.
Analysis Description: Pesticides, Organochlorine
Analysis Method: EPA 608

METHOD BLANK: T145626-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
4,4'-DDT	ug/L	<0.020	0.020	
4,4'-DDE	ug/L	<0.10	0.10	
4,4'-DDD	ug/L	<0.10	0.10	
Aldrin	ug/L	<0.010	0.010	

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METHOD BLANK: T145626-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
alpha-BHC	ug/L	<0.050	0.050	
alpha-Chlordane	ug/L	<0.012	0.012	
beta-BHC	ug/L	<0.020	0.020	
Chlordane	ug/L	<0.030	0.030	
delta-BHC	ug/L	<0.050	0.050	
Dieldrin	ug/L	<0.020	0.020	
Endosulfan I	ug/L	<0.030	0.030	
Endosulfan II	ug/L	<0.030	0.030	
Endosulfan sulfate	ug/L	<0.050	0.050	
Endrin	ug/L	<0.020	0.020	
Endrin aldehyde	ug/L	<0.020	0.020	
Endrin ketone	ug/L	<0.020	0.020	
gamma-BHC (Lindane)	ug/L	<0.030	0.030	
gamma-Chlordane	ug/L	<0.010	0.010	
Heptachlor	ug/L	<0.010	0.010	
Heptachlor epoxide	ug/L	<0.010	0.010	
Methoxychlor	ug/L	<0.50	0.50	
Toxaphene	ug/L	<1.0	1.0	
Tetrachloro-m-xylene (S)	%	56	34-106	

LABORATORY CONTROL SAMPLE: T145626-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
4,4'-DDT	ug/L	0.0500	0.0329	66	39-118	
4,4'-DDE	ug/L	0.0500	<0.10	59	46-111	
4,4'-DDD	ug/L	0.0500	<0.10	61	30-141	
Aldrin	ug/L	0.0500	0.0268	54	24-120	
alpha-BHC	ug/L	0.0500	<0.050	57	40-124	
alpha-Chlordane	ug/L	0.0500	0.0261	52	50-150	
beta-BHC	ug/L	0.0500	0.0248	50	31-104	
delta-BHC	ug/L	0.0500	<0.050	69	44-161	
Dieldrin	ug/L	0.0500	0.0303	61	35-102	
Endosulfan I	ug/L	0.0500	<0.030	54	28-124	
Endosulfan II	ug/L	0.0500	0.0334	67	33-130	
Endosulfan sulfate	ug/L	0.0500	<0.050	69	44-164	
Endrin	ug/L	0.0500	0.0354	71	42-145	
Endrin aldehyde	ug/L	0.0500	0.0316	63	30-114	
Endrin ketone	ug/L	0.0500	0.0430	86	37-133	
gamma-BHC (Lindane)	ug/L	0.0500	<0.030	54	43-124	
gamma-Chlordane	ug/L	0.0500	0.0288	58	50-150	
Heptachlor	ug/L	0.0500	0.0329	66	21-142	
Heptachlor epoxide	ug/L	0.0500	0.0277	55	40-132	

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LABORATORY CONTROL SAMPLE: T145626-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Methoxychlor	ug/L	0.0500	<0.50	65	32-105	
Tetrachloro-m-xylene (S)	%	0.0600	0.0394	66	34-106	

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

QC Batch: T145746
QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.
Analysis Description: PCBs
Analysis Method: EPA 608

METHOD BLANK: T145746-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Aroclor-1016	ug/L	<0.10	0.10	
Aroclor-1221	ug/L	<0.10	0.10	
Aroclor-1232	ug/L	<0.10	0.10	
Aroclor-1242	ug/L	<0.10	0.10	
Aroclor-1248	ug/L	<0.10	0.10	
Aroclor-1254	ug/L	<0.10	0.10	
Aroclor-1260	ug/L	<0.10	0.10	
Tetrachloro-m-xylene (S)	%	72	18-105	

LABORATORY CONTROL SAMPLE: T145746-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Aroclor-1016	ug/L	0.800	0.470	59	50-140	
Aroclor-1260	ug/L	0.800	0.507	63	8-140	
Tetrachloro-m-xylene (S)	%	0.0600	0.0331	55	18-105	

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

QC Batch: T145630
QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.
Analysis Description: PNAs by SIM
Analysis Method: EPA 8270E

METHOD BLANK: T145630-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Naphthalene	ug/L	<5.0	5.0	
2-Methylnaphthalene	ug/L	<5.0	5.0	
Acenaphthylene	ug/L	<5.0	5.0	

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METHOD BLANK: T145630-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Acenaphthene	ug/L	<5.0	5.0	
Fluorene	ug/L	<5.0	5.0	
Phenanthrene	ug/L	<2.0	2.0	
Anthracene	ug/L	<5.0	5.0	
Fluoranthene	ug/L	<1.0	1.0	
Pyrene	ug/L	<5.0	5.0	
Benzo (a) anthracene	ug/L	<1.0	1.0	
Chrysene	ug/L	<1.0	1.0	
Benzo (b) fluoranthene	ug/L	<1.0	1.0	
Benzo (k) fluoranthene	ug/L	<1.0	1.0	
Benzo (a) pyrene	ug/L	<1.0	1.0	
Indeno (1,2,3-cd) pyrene	ug/L	<2.0	2.0	
Dibenz (a,h) anthracene	ug/L	<2.0	2.0	
Benzo (g,h,i) perylene	ug/L	<1.0	1.0	
Nitrobenzene-d5 (S)	**%**	**154**	**31-130**	**802**
2-Fluorobiphenyl (S)	%	79	37-155	
Terphenyl-d14 (S)	%	100	60-172	

LABORATORY CONTROL SAMPLE: T145630-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Naphthalene	ug/L	0.100	<5.0	81	47-109	
2-Methylnaphthalene	ug/L	0.100	<5.0	92	41-120	
Acenaphthylene	ug/L	0.100	<5.0	76	35-116	
Acenaphthene	ug/L	0.100	<5.0	104	45-102	
Fluorene	ug/L	0.100	<5.0	84	43-116	
Phenanthrene	ug/L	0.100	<2.0	85	50-123	
Anthracene	ug/L	0.100	<5.0	80	45-128	
Fluoranthene	ug/L	0.100	<1.0	86	50-150	
Pyrene	ug/L	0.100	<5.0	85	53-150	
Benzo (a) anthracene	ug/L	0.100	<1.0	82	37-164	
Chrysene	ug/L	0.100	<1.0	74	32-111	
Benzo (b) fluoranthene	ug/L	0.100	<1.0	90	34-178	
Benzo (k) fluoranthene	ug/L	0.100	<1.0	87	55-138	
Benzo (a) pyrene	ug/L	0.100	<1.0	86	40-146	
Indeno (1,2,3-cd) pyrene	ug/L	0.100	<2.0	74	42-141	
Dibenz (a,h) anthracene	ug/L	0.100	<2.0	70	35-142	
Benzo (g,h,i) perylene	ug/L	0.100	<1.0	71	29-131	
Nitrobenzene-d5 (S)	**%**	**0.100**	**0.216**	**216**	**31-130**	**802**
2-Fluorobiphenyl (S)	%	0.101	0.130	128	37-155	
Terphenyl-d14 (S)	%	0.100	0.114	114	60-172	

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Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

QC Batch: T145678
QC Batch Method: EPA 5030B Purge-and-Trap for Aqueous Samples

Analysis Description: Volatiles, Full MDEQ+ List
Analysis Method: EPA 8260D

METHOD BLANK: T145678-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Dichlorodifluoromethane	ug/L	<5.0	5.0	
Chloromethane	ug/L	<5.0	5.0	
Vinyl chloride	ug/L	<1.0	1.0	
Bromomethane	ug/L	<5.0	5.0	
Chloroethane	ug/L	<5.0	5.0	
Trichlorofluoromethane	ug/L	<1.0	1.0	
Diethyl ether	ug/L	<10	10	
Tert-butyl alcohol	ug/L	<50	50	
1,1-Dichloroethene	ug/L	<1.0	1.0	
Acetone	ug/L	<50	50	
Iodomethane	ug/L	<5.0	5.0	
Carbon disulfide	ug/L	<5.0	5.0	
Methyl-tert-butyl ether	ug/L	<5.0	5.0	
Methylene chloride	ug/L	<5.0	5.0	
Acrylonitrile	ug/L	<2.0	2.0	
trans-1,2-Dichloroethene	ug/L	<1.0	1.0	
1,1-Dichloroethane	ug/L	<1.0	1.0	
Diisopropyl Ether	ug/L	<5.0	5.0	
2-Butanone	ug/L	<25	25	
cis-1,2-Dichloroethene	ug/L	<1.0	1.0	
t-Butyl Ethyl Ether	ug/L	<5.0	5.0	
Bromochloromethane	ug/L	<1.0	1.0	
Tetrahydrofuran	ug/L	<90	90	
Chloroform	ug/L	<1.0	1.0	
1,1,1-Trichloroethane	ug/L	<1.0	1.0	
Carbon tetrachloride	ug/L	<1.0	1.0	
Benzene	ug/L	<1.0	1.0	
t-Amyl Methyl Ether	ug/L	<5.0	5.0	
1,2-Dichloroethane	ug/L	<1.0	1.0	
Cyclohexane	ug/L	<5.0	5.0	
Trichloroethene	ug/L	<1.0	1.0	
1,2-Dichloropropane	ug/L	<1.0	1.0	
Dibromomethane	ug/L	<5.0	5.0	
Bromodichloromethane	ug/L	<1.0	1.0	
cis-1,3-Dichloropropene	ug/L	<1.0	1.0	
4-Methyl-2-pentanone	ug/L	<50	50	
Toluene	ug/L	<1.0	1.0	
trans-1,3-Dichloropropene	ug/L	<1.0	1.0	

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METHOD BLANK: T145678-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
1,1,2-Trichloroethane	ug/L	<1.0	1.0	
Tetrachloroethene	ug/L	<1.0	1.0	
2-Hexanone	ug/L	<50	50	
Dibromochloromethane	ug/L	<5.0	5.0	
1,2-Dibromoethane (EDB)	ug/L	<1.0	1.0	
Chlorobenzene	ug/L	<1.0	1.0	
1,1,1,2-Tetrachloroethane	ug/L	<1.0	1.0	
Ethylbenzene	ug/L	<1.0	1.0	
m,p-Xylene	ug/L	<2.0	2.0	
o-Xylene	ug/L	<1.0	1.0	
Xylenes, total	ug/L	<3.0	3.0	
Styrene	ug/L	<1.0	1.0	
Bromoform	ug/L	<1.0	1.0	
Isopropylbenzene	ug/L	<5.0	5.0	
1,1,2,2-Tetrachloroethane	ug/L	<1.0	1.0	
1,2,3-Trichloropropane	ug/L	<1.0	1.0	
trans-1,4-Dichloro-2-butene	ug/L	<1.0	1.0	
Bromobenzene	ug/L	<1.0	1.0	
n-Propylbenzene	ug/L	<1.0	1.0	
1,3,5-Trimethylbenzene	ug/L	<1.0	1.0	
t-Butyl Benzene	ug/L	<1.0	1.0	
1,2,4-Trimethylbenzene	ug/L	<1.0	1.0	
sec-Butylbenzene	ug/L	<1.0	1.0	
p-Isopropyltoluene	ug/L	<5.0	5.0	
1,3-Dichlorobenzene	ug/L	<1.0	1.0	
1,4-Dichlorobenzene	ug/L	<1.0	1.0	
n-Butylbenzene	ug/L	<1.0	1.0	
1,2,3-Trimethylbenzene	ug/L	<1.0	1.0	
1,2-Dichlorobenzene	ug/L	<1.0	1.0	
1,2-Dibromo-3-chloropropane	ug/L	<2.0	2.0	
Hexachloroethane	ug/L	<5.0	5.0	
1,2,4-Trichlorobenzene	ug/L	<5.0	5.0	
Naphthalene	ug/L	<5.0	5.0	
1,2,3-Trichlorobenzene	ug/L	<5.0	5.0	
2-Methylnaphthalene	ug/L	<5.0	5.0	
1,2-Dichloroethane-d4 (S)	%	94	68-133	
Toluene-d8 (S)	%	107	75-120	
4-Bromofluorobenzene (S)	%	98	69-119	
1,2-Dichlorobenzene-d4 (S)	%	103	72-127	

LABORATORY CONTROL SAMPLE: T145678-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Dichlorodifluoromethane	ug/L	50.0	51.2	102	46-153	

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LABORATORY CONTROL SAMPLE: T145678-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Chloromethane	ug/L	50.0	51.3	103	42-162	
Vinyl chloride	ug/L	50.0	51.9	104	47-184	
Bromomethane	ug/L	50.0	47.7	95	34-189	
Chloroethane	ug/L	50.0	51.6	103	74-151	
Trichlorofluoromethane	ug/L	50.0	46.8	94	71-172	
Diethyl ether	ug/L	50.0	55.9	112	50-150	
Tert-butyl alcohol	ug/L	250	241	96	50-150	
1,1-Dichloroethene	ug/L	50.0	46.4	93	64-156	
Acetone	ug/L	50.0	63.1	126	70-130	
Iodomethane	ug/L	50.0	46.0	92	70-130	
Carbon disulfide	ug/L	50.0	47.8	96	70-130	
Methyl-tert-butyl ether	ug/L	50.0	52.8	106	81-115	
Methylene chloride	ug/L	50.0	50.9	102	38-167	
Acrylonitrile	ug/L	50.0	169	339	60-109	
trans-1,2-Dichloroethene	ug/L	50.0	51.3	103	62-142	
1,1-Dichloroethane	ug/L	50.0	53.1	106	62-120	
Diisopropyl Ether	ug/L	50.0	54.9	110	77-122	
2-Butanone	ug/L	50.0	57.5	115	70-130	
cis-1,2-Dichloroethene	ug/L	50.0	53.4	107	80-120	
t-Butyl Ethyl Ether	ug/L	50.0	55.5	111	50-150	
Bromochloromethane	ug/L	50.0	54.5	109	80-120	
Tetrahydrofuran	ug/L	50.0	<90	95	50-150	
Chloroform	ug/L	50.0	48.9	98	80-120	
1,1,1-Trichloroethane	ug/L	50.0	47.0	94	83-128	
Carbon tetrachloride	ug/L	50.0	46.4	93	79-141	
Benzene	ug/L	50.0	53.3	107	80-120	
t-Amyl Methyl Ether	ug/L	50.0	50.4	101	50-150	
1,2-Dichloroethane	ug/L	50.0	47.9	96	80-120	
Cyclohexane	ug/L	50.0	47.7	95	50-150	
Trichloroethene	ug/L	50.0	46.8	94	69-133	
1,2-Dichloropropane	ug/L	50.0	54.0	108	80-120	
Dibromomethane	ug/L	50.0	52.8	106	80-120	
Bromodichloromethane	ug/L	50.0	49.6	99	80-120	
cis-1,3-Dichloropropene	ug/L	50.0	51.2	102	73-121	
4-Methyl-2-pentanone	ug/L	50.0	53.6	107	70-130	
Toluene	ug/L	50.0	48.0	96	80-120	
trans-1,3-Dichloropropene	ug/L	50.0	50.2	100	73-118	
1,1,2-Trichloroethane	ug/L	50.0	52.4	105	80-120	
Tetrachloroethene	ug/L	50.0	46.2	92	70-120	
2-Hexanone	ug/L	50.0	51.0	102	70-130	
Dibromochloromethane	ug/L	50.0	47.8	96	76-116	

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LABORATORY CONTROL SAMPLE: T145678-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
1,2-Dibromoethane (EDB)	ug/L	50.0	54.2	108	78-113	
Chlorobenzene	ug/L	50.0	53.4	107	80-120	
1,1,1,2-Tetrachloroethane	ug/L	50.0	48.1	96	77-120	
Ethylbenzene	ug/L	50.0	48.2	96	78-120	
m,p-Xylene	ug/L	100	98.0	98	78-122	
o-Xylene	ug/L	50.0	49.2	98	78-122	
Xylenes, total	ug/L	150	147	98	78-122	
Styrene	ug/L	50.0	49.1	98	76-121	
Bromoform	ug/L	50.0	46.8	94	71-115	
Isopropylbenzene	ug/L	50.0	48.3	97	78-127	
1,1,2,2-Tetrachloroethane	ug/L	50.0	56.4	113	81-124	
1,2,3-Trichloropropane	ug/L	50.0	54.3	109	69-116	
trans-1,4-Dichloro-2-butene	ug/L	50.0	57.8	116	50-150	
Bromobenzene	ug/L	50.0	50.8	102	80-120	
n-Propylbenzene	ug/L	50.0	50.4	101	76-123	
1,3,5-Trimethylbenzene	ug/L	50.0	49.1	98	81-125	
t-Butyl Benzene	ug/L	50.0	48.5	97	72-129	
1,2,4-Trimethylbenzene	ug/L	50.0	49.6	99	79-129	
sec-Butylbenzene	ug/L	50.0	48.8	98	73-133	
p-Isopropyltoluene	ug/L	50.0	47.2	94	76-129	
1,3-Dichlorobenzene	ug/L	50.0	52.9	106	80-120	
1,4-Dichlorobenzene	ug/L	50.0	50.6	101	80-120	
n-Butylbenzene	ug/L	50.0	46.6	93	81-127	
1,2,3-Trimethylbenzene	ug/L	50.0	48.4	97	50-150	
1,2-Dichlorobenzene	ug/L	50.0	49.8	100	80-120	
1,2-Dibromo-3-chloropropane	ug/L	50.0	43.7	87	58-123	
Hexachloroethane	ug/L	50.0	49.8	100	50-150	
1,2,4-Trichlorobenzene	ug/L	50.0	47.9	96	74-116	
Naphthalene	ug/L	50.0	47.8	96	63-118	
1,2,3-Trichlorobenzene	ug/L	50.0	47.8	96	74-114	
2-Methylnaphthalene	ug/L	50.0	47.4	95	50-150	
1,2-Dichloroethane-d4 (S)	%	30.0	29.4	98	68-133	
Toluene-d8 (S)	%	30.0	29.9	100	75-120	
4-Bromofluorobenzene (S)	%	30.0	30.5	102	69-119	
1,2-Dichlorobenzene-d4 (S)	%	30.0	29.2	97	72-127	

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

QC Batch: T145785
QC Batch Method: EPA 5030B Purge-and-Trap for Aqueous Samples

Analysis Description: Volatiles, Full MDEQ+ List
Analysis Method: EPA 8260D

CERTIFICATE OF ANALYSIS

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METHOD BLANK: T145785-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Dichlorodifluoromethane	ug/L	<5.0	5.0	
Chloromethane	ug/L	<5.0	5.0	
Vinyl chloride	ug/L	<1.0	1.0	
Bromomethane	ug/L	<5.0	5.0	
Chloroethane	ug/L	<5.0	5.0	
Trichlorofluoromethane	ug/L	<1.0	1.0	
Diethyl ether	ug/L	<10	10	
Tert-butyl alcohol	ug/L	<50	50	
1,1-Dichloroethene	ug/L	<1.0	1.0	
Acetone	ug/L	<50	50	
Iodomethane	ug/L	<5.0	5.0	
Carbon disulfide	ug/L	<5.0	5.0	
Methyl-tert-butyl ether	ug/L	<5.0	5.0	
Methylene chloride	ug/L	<5.0	5.0	
Acrylonitrile	ug/L	<2.0	2.0	
trans-1,2-Dichloroethene	ug/L	<1.0	1.0	
1,1-Dichloroethane	ug/L	<1.0	1.0	
Diisopropyl Ether	ug/L	<5.0	5.0	
2-Butanone	ug/L	<25	25	
cis-1,2-Dichloroethene	ug/L	<1.0	1.0	
t-Butyl Ethyl Ether	ug/L	<5.0	5.0	
Bromochloromethane	ug/L	<1.0	1.0	
Tetrahydrofuran	ug/L	<90	90	
Chloroform	ug/L	<1.0	1.0	
1,1,1-Trichloroethane	ug/L	<1.0	1.0	
Carbon tetrachloride	ug/L	<1.0	1.0	
Benzene	ug/L	<1.0	1.0	
t-Amyl Methyl Ether	ug/L	<5.0	5.0	
1,2-Dichloroethane	ug/L	<1.0	1.0	
Cyclohexane	ug/L	<5.0	5.0	
Trichloroethene	ug/L	<1.0	1.0	
1,2-Dichloropropane	ug/L	<1.0	1.0	
Dibromomethane	ug/L	<5.0	5.0	
Bromodichloromethane	ug/L	<1.0	1.0	
cis-1,3-Dichloropropene	ug/L	<1.0	1.0	
4-Methyl-2-pentanone	ug/L	<50	50	
Toluene	ug/L	<1.0	1.0	
trans-1,3-Dichloropropene	ug/L	<1.0	1.0	
1,1,2-Trichloroethane	ug/L	<1.0	1.0	
Tetrachloroethene	ug/L	<1.0	1.0	
2-Hexanone	ug/L	<50	50	
Dibromochloromethane	ug/L	<5.0	5.0	
1,2-Dibromoethane (EDB)	ug/L	<1.0	1.0	
Chlorobenzene	ug/L	<1.0	1.0	

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METHOD BLANK: T145785-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
1,1,1,2-Tetrachloroethane	ug/L	<1.0	1.0	
Ethylbenzene	ug/L	<1.0	1.0	
m,p-Xylene	ug/L	<2.0	2.0	
o-Xylene	ug/L	<1.0	1.0	
Xylenes, total	ug/L	<3.0	3.0	
Styrene	ug/L	<1.0	1.0	
Bromoform	ug/L	<1.0	1.0	
Isopropylbenzene	ug/L	<5.0	5.0	
1,1,2,2-Tetrachloroethane	ug/L	<1.0	1.0	
1,2,3-Trichloropropane	ug/L	<1.0	1.0	
trans-1,4-Dichloro-2-butene	ug/L	<1.0	1.0	
Bromobenzene	ug/L	<1.0	1.0	
n-Propylbenzene	ug/L	<1.0	1.0	
1,3,5-Trimethylbenzene	ug/L	<1.0	1.0	
t-Butyl Benzene	ug/L	<1.0	1.0	
1,2,4-Trimethylbenzene	ug/L	<1.0	1.0	
sec-Butylbenzene	ug/L	<1.0	1.0	
p-Isopropyltoluene	ug/L	<5.0	5.0	
1,3-Dichlorobenzene	ug/L	<1.0	1.0	
1,4-Dichlorobenzene	ug/L	<1.0	1.0	
n-Butylbenzene	ug/L	<1.0	1.0	
1,2,3-Trimethylbenzene	ug/L	<1.0	1.0	
1,2-Dichlorobenzene	ug/L	<1.0	1.0	
1,2-Dibromo-3-chloropropane	ug/L	<2.0	2.0	
Hexachloroethane	ug/L	<5.0	5.0	
1,2,4-Trichlorobenzene	ug/L	<5.0	5.0	
Naphthalene	ug/L	<5.0	5.0	
1,2,3-Trichlorobenzene	ug/L	<5.0	5.0	
2-Methylnaphthalene	ug/L	<5.0	5.0	
1,2-Dichloroethane-d4 (S)	%	101	68-133	
Toluene-d8 (S)	%	107	75-120	
4-Bromofluorobenzene (S)	%	99	69-119	
1,2-Dichlorobenzene-d4 (S)	%	99	72-127	

LABORATORY CONTROL SAMPLE: T145785-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Dichlorodifluoromethane	ug/L	50.0	50.6	101	46-153	
Chloromethane	ug/L	50.0	45.0	90	42-162	
Vinyl chloride	ug/L	50.0	45.9	92	47-184	
Bromomethane	ug/L	50.0	51.5	103	34-189	
Chloroethane	ug/L	50.0	48.0	96	74-151	
Trichlorofluoromethane	ug/L	50.0	51.0	102	71-172	

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LABORATORY CONTROL SAMPLE: T145785-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Diethyl ether	ug/L	50.0	47.8	96	50-150	
Tert-butyl alcohol	ug/L	250	206	82	50-150	
1,1-Dichloroethene	ug/L	50.0	53.3	107	64-156	
Acetone	ug/L	50.0	59.7	119	70-130	
Iodomethane	ug/L	50.0	39.4	79	70-130	
Carbon disulfide	ug/L	50.0	47.4	95	70-130	
Methyl-tert-butyl ether	ug/L	50.0	51.0	102	81-115	
Methylene chloride	ug/L	50.0	49.2	98	38-167	
Acrylonitrile	**ug/L**	**50.0**	**86.9**	**174**	**60-109**	**112**
trans-1,2-Dichloroethene	ug/L	50.0	50.3	101	62-142	
1,1-Dichloroethane	ug/L	50.0	48.8	98	62-120	
Diisopropyl Ether	ug/L	50.0	49.6	99	77-122	
2-Butanone	ug/L	50.0	44.0	88	70-130	
cis-1,2-Dichloroethene	ug/L	50.0	49.1	98	80-120	
t-Butyl Ethyl Ether	ug/L	50.0	51.2	102	50-150	
Bromochloromethane	ug/L	50.0	48.8	98	80-120	
Tetrahydrofuran	ug/L	50.0	<90	93	50-150	
Chloroform	ug/L	50.0	49.2	98	80-120	
1,1,1-Trichloroethane	ug/L	50.0	49.2	98	83-128	
Carbon tetrachloride	ug/L	50.0	50.6	101	79-141	
Benzene	ug/L	50.0	50.6	101	80-120	
t-Amyl Methyl Ether	ug/L	50.0	45.1	90	50-150	
1,2-Dichloroethane	ug/L	50.0	48.7	97	80-120	
Cyclohexane	ug/L	50.0	53.9	108	50-150	
Trichloroethene	ug/L	50.0	50.6	101	69-133	
1,2-Dichloropropane	ug/L	50.0	46.6	93	80-120	
Dibromomethane	ug/L	50.0	47.7	95	80-120	
Bromodichloromethane	ug/L	50.0	46.9	94	80-120	
cis-1,3-Dichloropropene	ug/L	50.0	49.7	99	73-121	
4-Methyl-2-pentanone	ug/L	50.0	<50	85	70-130	
Toluene	ug/L	50.0	53.8	108	80-120	
trans-1,3-Dichloropropene	ug/L	50.0	48.3	97	73-118	
1,1,2-Trichloroethane	ug/L	50.0	47.6	95	80-120	
Tetrachloroethene	ug/L	50.0	53.0	106	70-120	
2-Hexanone	ug/L	50.0	<50	96	70-130	
Dibromochloromethane	ug/L	50.0	49.0	98	76-116	
1,2-Dibromoethane (EDB)	ug/L	50.0	49.4	99	78-113	
Chlorobenzene	ug/L	50.0	49.2	98	80-120	
1,1,1,2-Tetrachloroethane	ug/L	50.0	48.6	97	77-120	
Ethylbenzene	ug/L	50.0	53.7	107	78-120	
m,p-Xylene	ug/L	100	109	109	78-122	

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LABORATORY CONTROL SAMPLE: T145785-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
o-Xylene	ug/L	50.0	49.6	99	78-122	
Xylenes, total	ug/L	150	158	105	78-122	
Styrene	ug/L	50.0	49.2	98	76-121	
Bromoform	ug/L	50.0	48.3	97	71-115	
Isopropylbenzene	ug/L	50.0	53.5	107	78-127	
1,1,2,2-Tetrachloroethane	ug/L	50.0	43.5	87	81-124	
1,2,3-Trichloropropane	ug/L	50.0	45.1	90	69-116	
trans-1,4-Dichloro-2-butene	ug/L	50.0	46.5	93	50-150	
Bromobenzene	ug/L	50.0	50.7	101	80-120	
n-Propylbenzene	ug/L	50.0	56.5	113	76-123	
1,3,5-Trimethylbenzene	ug/L	50.0	50.5	101	81-125	
t-Butyl Benzene	ug/L	50.0	50.7	101	72-129	
1,2,4-Trimethylbenzene	ug/L	50.0	50.6	101	79-129	
sec-Butylbenzene	ug/L	50.0	50.4	101	73-133	
p-Isopropyltoluene	ug/L	50.0	52.1	104	76-129	
1,3-Dichlorobenzene	ug/L	50.0	50.2	100	80-120	
1,4-Dichlorobenzene	ug/L	50.0	47.4	95	80-120	
n-Butylbenzene	ug/L	50.0	52.6	105	81-127	
1,2,3-Trimethylbenzene	ug/L	50.0	52.6	105	50-150	
1,2-Dichlorobenzene	ug/L	50.0	46.9	94	80-120	
1,2-Dibromo-3-chloropropane	ug/L	50.0	42.3	85	58-123	
Hexachloroethane	ug/L	50.0	50.8	102	50-150	
1,2,4-Trichlorobenzene	ug/L	50.0	47.1	94	74-116	
Naphthalene	ug/L	50.0	44.5	89	63-118	
1,2,3-Trichlorobenzene	ug/L	50.0	47.4	95	74-114	
2-Methylnaphthalene	ug/L	50.0	42.4	85	50-150	
1,2-Dichloroethane-d4 (S)	%	30.0	29.2	97	68-133	
Toluene-d8 (S)	%	30.0	32.2	108	75-120	
4-Bromofluorobenzene (S)	%	30.0	31.0	103	69-119	
1,2-Dichlorobenzene-d4 (S)	%	30.0	29.1	97	72-127	

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

QC Batch: T145823
QC Batch Method: EPA 5030B Purge-and-Trap for Aqueous Samples

Analysis Description: Volatiles, Full MDEQ+ List
Analysis Method: EPA 8260D

METHOD BLANK: T145823-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Dichlorodifluoromethane	ug/L	<5.0	5.0	

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METHOD BLANK: T145823-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Chloromethane	ug/L	<5.0	5.0	
Vinyl chloride	ug/L	<1.0	1.0	
Bromomethane	ug/L	<5.0	5.0	
Chloroethane	ug/L	<5.0	5.0	
Trichlorofluoromethane	ug/L	<1.0	1.0	
Diethyl ether	ug/L	<10	10	
Tert-butyl alcohol	ug/L	<50	50	
1,1-Dichloroethene	ug/L	<1.0	1.0	
Acetone	ug/L	<50	50	
Iodomethane	ug/L	<5.0	5.0	
Carbon disulfide	ug/L	<5.0	5.0	
Methyl-tert-butyl ether	ug/L	<5.0	5.0	
Methylene chloride	ug/L	<5.0	5.0	
Acrylonitrile	ug/L	<2.0	2.0	
trans-1,2-Dichloroethene	ug/L	<1.0	1.0	
1,1-Dichloroethane	ug/L	<1.0	1.0	
Diisopropyl Ether	ug/L	<5.0	5.0	
2-Butanone	ug/L	<25	25	
cis-1,2-Dichloroethene	ug/L	<1.0	1.0	
t-Butyl Ethyl Ether	ug/L	<5.0	5.0	
Bromochloromethane	ug/L	<1.0	1.0	
Tetrahydrofuran	ug/L	<90	90	
Chloroform	ug/L	<1.0	1.0	
1,1,1-Trichloroethane	ug/L	<1.0	1.0	
Carbon tetrachloride	ug/L	<1.0	1.0	
Benzene	ug/L	<1.0	1.0	
t-Amyl Methyl Ether	ug/L	<5.0	5.0	
1,2-Dichloroethane	ug/L	<1.0	1.0	
Cyclohexane	ug/L	<5.0	5.0	
Trichloroethene	ug/L	<1.0	1.0	
1,2-Dichloropropane	ug/L	<1.0	1.0	
Dibromomethane	ug/L	<5.0	5.0	
Bromodichloromethane	ug/L	<1.0	1.0	
cis-1,3-Dichloropropene	ug/L	<1.0	1.0	
4-Methyl-2-pentanone	ug/L	<50	50	
Toluene	ug/L	<1.0	1.0	
trans-1,3-Dichloropropene	ug/L	<1.0	1.0	
1,1,2-Trichloroethane	ug/L	<1.0	1.0	
Tetrachloroethene	ug/L	<1.0	1.0	
2-Hexanone	ug/L	<50	50	
Dibromochloromethane	ug/L	<5.0	5.0	
1,2-Dibromoethane (EDB)	ug/L	<1.0	1.0	
Chlorobenzene	ug/L	<1.0	1.0	
1,1,1,2-Tetrachloroethane	ug/L	<1.0	1.0	

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METHOD BLANK: T145823-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Ethylbenzene	ug/L	<1.0	1.0	
m,p-Xylene	ug/L	<2.0	2.0	
o-Xylene	ug/L	<1.0	1.0	
Xylenes, total	ug/L	<3.0	3.0	
Styrene	ug/L	<1.0	1.0	
Bromoform	ug/L	<1.0	1.0	
Isopropylbenzene	ug/L	<5.0	5.0	
1,1,2,2-Tetrachloroethane	ug/L	<1.0	1.0	
1,2,3-Trichloropropane	ug/L	<1.0	1.0	
trans-1,4-Dichloro-2-butene	ug/L	<1.0	1.0	
Bromobenzene	ug/L	<1.0	1.0	
n-Propylbenzene	ug/L	<1.0	1.0	
1,3,5-Trimethylbenzene	ug/L	<1.0	1.0	
t-Butyl Benzene	ug/L	<1.0	1.0	
1,2,4-Trimethylbenzene	ug/L	<1.0	1.0	
sec-Butylbenzene	ug/L	<1.0	1.0	
p-Isopropyltoluene	ug/L	<5.0	5.0	
1,3-Dichlorobenzene	ug/L	<1.0	1.0	
1,4-Dichlorobenzene	ug/L	<1.0	1.0	
n-Butylbenzene	ug/L	<1.0	1.0	
1,2,3-Trimethylbenzene	ug/L	<1.0	1.0	
1,2-Dichlorobenzene	ug/L	<1.0	1.0	
1,2-Dibromo-3-chloropropane	ug/L	<2.0	2.0	
Hexachloroethane	ug/L	<5.0	5.0	
1,2,4-Trichlorobenzene	ug/L	<5.0	5.0	
Naphthalene	ug/L	<5.0	5.0	
1,2,3-Trichlorobenzene	ug/L	<5.0	5.0	
2-Methylnaphthalene	ug/L	<5.0	5.0	
1,2-Dichloroethane-d4 (S)	%	101	68-133	
Toluene-d8 (S)	%	108	75-120	
4-Bromofluorobenzene (S)	%	102	69-119	
1,2-Dichlorobenzene-d4 (S)	%	100	72-127	

LABORATORY CONTROL SAMPLE: T145823-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Dichlorodifluoromethane	ug/L	50.0	45.0	90	46-153	
Chloromethane	ug/L	50.0	44.7	89	42-162	
Vinyl chloride	ug/L	50.0	44.8	90	47-184	
Bromomethane	ug/L	50.0	49.8	100	34-189	
Chloroethane	ug/L	50.0	46.3	93	74-151	
Trichlorofluoromethane	ug/L	50.0	50.7	101	71-172	
Diethyl ether	ug/L	50.0	48.5	97	50-150	

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LABORATORY CONTROL SAMPLE: T145823-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Tert-butyl alcohol	ug/L	250	213	85	50-150	
1,1-Dichloroethene	ug/L	50.0	53.4	107	64-156	
Acetone	**ug/L**	**50.0**	**78.8**	**158**	**70-130**	**112**
Iodomethane	ug/L	50.0	41.6	83	70-130	
Carbon disulfide	ug/L	50.0	46.6	93	70-130	
Methyl-tert-butyl ether	ug/L	50.0	51.2	102	81-115	
Methylene chloride	ug/L	50.0	48.7	97	38-167	
Acrylonitrile	**ug/L**	**50.0**	**90.4**	**181**	**60-109**	**112**
trans-1,2-Dichloroethene	ug/L	50.0	50.8	102	62-142	
1,1-Dichloroethane	ug/L	50.0	48.8	98	62-120	
Diisopropyl Ether	ug/L	50.0	50.2	100	77-122	
2-Butanone	ug/L	50.0	51.0	102	70-130	
cis-1,2-Dichloroethene	ug/L	50.0	50.7	101	80-120	
t-Butyl Ethyl Ether	ug/L	50.0	51.7	103	50-150	
Bromochloromethane	ug/L	50.0	50.2	100	80-120	
Tetrahydrofuran	ug/L	50.0	<90	95	50-150	
Chloroform	ug/L	50.0	50.2	100	80-120	
1,1,1-Trichloroethane	ug/L	50.0	49.7	99	83-128	
Carbon tetrachloride	ug/L	50.0	51.1	102	79-141	
Benzene	ug/L	50.0	51.1	102	80-120	
t-Amyl Methyl Ether	ug/L	50.0	46.7	93	50-150	
1,2-Dichloroethane	ug/L	50.0	49.6	99	80-120	
Cyclohexane	ug/L	50.0	54.3	109	50-150	
Trichloroethene	ug/L	50.0	52.3	105	69-133	
1,2-Dichloropropane	ug/L	50.0	47.4	95	80-120	
Dibromomethane	ug/L	50.0	49.5	99	80-120	
Bromodichloromethane	ug/L	50.0	48.6	97	80-120	
cis-1,3-Dichloropropene	ug/L	50.0	50.4	101	73-121	
4-Methyl-2-pentanone	ug/L	50.0	<50	88	70-130	
Toluene	ug/L	50.0	53.2	106	80-120	
trans-1,3-Dichloropropene	ug/L	50.0	49.5	99	73-118	
1,1,2-Trichloroethane	ug/L	50.0	48.1	96	80-120	
Tetrachloroethene	ug/L	50.0	53.2	106	70-120	
2-Hexanone	ug/L	50.0	55.4	111	70-130	
Dibromochloromethane	ug/L	50.0	50.1	100	76-116	
1,2-Dibromoethane (EDB)	ug/L	50.0	50.2	100	78-113	
Chlorobenzene	ug/L	50.0	50.3	101	80-120	
1,1,1,2-Tetrachloroethane	ug/L	50.0	49.8	100	77-120	
Ethylbenzene	ug/L	50.0	54.2	108	78-120	
m,p-Xylene	ug/L	100	110	110	78-122	
o-Xylene	ug/L	50.0	50.1	100	78-122	

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LABORATORY CONTROL SAMPLE: T145823-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Xylenes, total	ug/L	150	160	107	78-122	
Styrene	ug/L	50.0	50.1	100	76-121	
Bromoform	ug/L	50.0	49.7	99	71-115	
Isopropylbenzene	ug/L	50.0	54.9	110	78-127	
1,1,2,2-Tetrachloroethane	ug/L	50.0	45.6	91	81-124	
1,2,3-Trichloropropane	ug/L	50.0	47.2	94	69-116	
trans-1,4-Dichloro-2-butene	ug/L	50.0	48.3	97	50-150	
Bromobenzene	ug/L	50.0	49.7	99	80-120	
n-Propylbenzene	ug/L	50.0	55.4	111	76-123	
1,3,5-Trimethylbenzene	ug/L	50.0	50.2	100	81-125	
t-Butyl Benzene	ug/L	50.0	50.4	101	72-129	
1,2,4-Trimethylbenzene	ug/L	50.0	50.0	100	79-129	
sec-Butylbenzene	ug/L	50.0	50.1	100	73-133	
p-Isopropyltoluene	ug/L	50.0	51.6	103	76-129	
1,3-Dichlorobenzene	ug/L	50.0	49.7	99	80-120	
1,4-Dichlorobenzene	ug/L	50.0	48.2	96	80-120	
n-Butylbenzene	ug/L	50.0	53.1	106	81-127	
1,2,3-Trimethylbenzene	ug/L	50.0	52.5	105	50-150	
1,2-Dichlorobenzene	ug/L	50.0	47.6	95	80-120	
1,2-Dibromo-3-chloropropane	ug/L	50.0	42.6	85	58-123	
Hexachloroethane	ug/L	50.0	51.6	103	50-150	
1,2,4-Trichlorobenzene	ug/L	50.0	47.7	95	74-116	
Naphthalene	ug/L	50.0	45.1	90	63-118	
1,2,3-Trichlorobenzene	ug/L	50.0	47.9	96	74-114	
2-Methylnaphthalene	ug/L	50.0	42.0	84	50-150	
1,2-Dichloroethane-d4 (S)	%	30.0	29.6	99	68-133	
Toluene-d8 (S)	%	30.0	31.5	105	75-120	
4-Bromofluorobenzene (S)	%	30.0	31.0	103	69-119	
1,2-Dichlorobenzene-d4 (S)	%	30.0	29.4	98	72-127	

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

QC Batch: T145860
QC Batch Method: EPA 5030B Purge-and-Trap for Aqueous Samples
Analysis Description: Volatiles, Full MDEQ+ List
Analysis Method: EPA 8260D

METHOD BLANK: T145860-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Dichlorodifluoromethane	ug/L	<5.0	5.0	
Chloromethane	ug/L	<5.0	5.0	

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METHOD BLANK: T145860-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Vinyl chloride	ug/L	<1.0	1.0	
Bromomethane	ug/L	<5.0	5.0	
Chloroethane	ug/L	<5.0	5.0	
Trichlorofluoromethane	ug/L	<1.0	1.0	
Diethyl ether	ug/L	<10	10	
Tert-butyl alcohol	ug/L	<50	50	
1,1-Dichloroethene	ug/L	<1.0	1.0	
Acetone	ug/L	<50	50	
Iodomethane	ug/L	<5.0	5.0	
Carbon disulfide	ug/L	<5.0	5.0	
Methyl-tert-butyl ether	ug/L	<5.0	5.0	
Methylene chloride	ug/L	<5.0	5.0	
Acrylonitrile	ug/L	<2.0	2.0	
trans-1,2-Dichloroethene	ug/L	<1.0	1.0	
1,1-Dichloroethane	ug/L	<1.0	1.0	
Diisopropyl Ether	ug/L	<5.0	5.0	
2-Butanone	ug/L	<25	25	
cis-1,2-Dichloroethene	ug/L	<1.0	1.0	
t-Butyl Ethyl Ether	ug/L	<5.0	5.0	
Bromochloromethane	ug/L	<1.0	1.0	
Tetrahydrofuran	ug/L	<90	90	
Chloroform	ug/L	<1.0	1.0	
1,1,1-Trichloroethane	ug/L	<1.0	1.0	
Carbon tetrachloride	ug/L	<1.0	1.0	
Benzene	ug/L	<1.0	1.0	
t-Amyl Methyl Ether	ug/L	<5.0	5.0	
1,2-Dichloroethane	ug/L	<1.0	1.0	
Cyclohexane	ug/L	<5.0	5.0	
Trichloroethene	ug/L	<1.0	1.0	
1,2-Dichloropropane	ug/L	<1.0	1.0	
Dibromomethane	ug/L	<5.0	5.0	
Bromodichloromethane	ug/L	<1.0	1.0	
cis-1,3-Dichloropropene	ug/L	<1.0	1.0	
4-Methyl-2-pentanone	ug/L	<50	50	
Toluene	ug/L	<1.0	1.0	
trans-1,3-Dichloropropene	ug/L	<1.0	1.0	
1,1,2-Trichloroethane	ug/L	<1.0	1.0	
Tetrachloroethene	ug/L	<1.0	1.0	
2-Hexanone	ug/L	<50	50	
Dibromochloromethane	ug/L	<5.0	5.0	
1,2-Dibromoethane (EDB)	ug/L	<1.0	1.0	
Chlorobenzene	ug/L	<1.0	1.0	
1,1,1,2-Tetrachloroethane	ug/L	<1.0	1.0	
Ethylbenzene	ug/L	<1.0	1.0	

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METHOD BLANK: T145860-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
m,p-Xylene	ug/L	<2.0	2.0	
o-Xylene	ug/L	<1.0	1.0	
Xylenes, total	ug/L	<3.0	3.0	
Styrene	ug/L	<1.0	1.0	
Bromoform	ug/L	<1.0	1.0	
Isopropylbenzene	ug/L	<5.0	5.0	
1,1,2,2-Tetrachloroethane	ug/L	<1.0	1.0	
1,2,3-Trichloropropane	ug/L	<1.0	1.0	
trans-1,4-Dichloro-2-butene	ug/L	<1.0	1.0	
Bromobenzene	ug/L	<1.0	1.0	
n-Propylbenzene	ug/L	<1.0	1.0	
1,3,5-Trimethylbenzene	ug/L	<1.0	1.0	
t-Butyl Benzene	ug/L	<1.0	1.0	
1,2,4-Trimethylbenzene	ug/L	<1.0	1.0	
sec-Butylbenzene	ug/L	<1.0	1.0	
p-Isopropyltoluene	ug/L	<5.0	5.0	
1,3-Dichlorobenzene	ug/L	<1.0	1.0	
1,4-Dichlorobenzene	ug/L	<1.0	1.0	
n-Butylbenzene	ug/L	<1.0	1.0	
1,2,3-Trimethylbenzene	ug/L	<1.0	1.0	
1,2-Dichlorobenzene	ug/L	<1.0	1.0	
1,2-Dibromo-3-chloropropane	ug/L	<2.0	2.0	
Hexachloroethane	ug/L	<5.0	5.0	
1,2,4-Trichlorobenzene	ug/L	<5.0	5.0	
Naphthalene	ug/L	<5.0	5.0	
1,2,3-Trichlorobenzene	ug/L	<5.0	5.0	
2-Methylnaphthalene	ug/L	<5.0	5.0	
1,2-Dichloroethane-d4 (S)	%	96	68-133	
Toluene-d8 (S)	%	105	75-120	
4-Bromofluorobenzene (S)	%	92	69-119	
1,2-Dichlorobenzene-d4 (S)	%	97	72-127	

LABORATORY CONTROL SAMPLE: T145860-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Dichlorodifluoromethane	ug/L	50.0	50.8	102	46-153	
Chloromethane	ug/L	50.0	47.5	95	42-162	
Vinyl chloride	ug/L	50.0	47.3	95	47-184	
Bromomethane	ug/L	50.0	50.1	100	34-189	
Chloroethane	ug/L	50.0	48.4	97	74-151	
Trichlorofluoromethane	ug/L	50.0	47.3	95	71-172	
Diethyl ether	ug/L	50.0	52.4	105	50-150	
Tert-butyl alcohol	ug/L	250	229	92	50-150	

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LABORATORY CONTROL SAMPLE: T145860-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
1,1-Dichloroethene	ug/L	50.0	54.5	109	64-156	
Acetone	**ug/L**	**50.0**	**82.2**	**164**	**70-130**	**112**
Iodomethane	ug/L	50.0	41.2	82	70-130	
Carbon disulfide	ug/L	50.0	48.4	97	70-130	
Methyl-tert-butyl ether	ug/L	50.0	54.7	109	81-115	
Methylene chloride	ug/L	50.0	50.0	100	38-167	
Acrylonitrile	**ug/L**	**50.0**	**91.8**	**184**	**60-109**	**112**
trans-1,2-Dichloroethene	ug/L	50.0	52.5	105	62-142	
1,1-Dichloroethane	ug/L	50.0	50.1	100	62-120	
Diisopropyl Ether	ug/L	50.0	53.1	106	77-122	
2-Butanone	ug/L	50.0	57.1	114	70-130	
cis-1,2-Dichloroethene	ug/L	50.0	51.3	103	80-120	
t-Butyl Ethyl Ether	ug/L	50.0	56.2	112	50-150	
Bromochloromethane	ug/L	50.0	47.9	96	80-120	
Tetrahydrofuran	ug/L	50.0	<90	106	50-150	
Chloroform	ug/L	50.0	49.1	98	80-120	
1,1,1-Trichloroethane	ug/L	50.0	46.8	94	83-128	
Carbon tetrachloride	ug/L	50.0	47.2	94	79-141	
Benzene	ug/L	50.0	52.6	105	80-120	
t-Amyl Methyl Ether	ug/L	50.0	50.2	100	50-150	
1,2-Dichloroethane	ug/L	50.0	48.7	97	80-120	
Cyclohexane	ug/L	50.0	56.6	113	50-150	
Trichloroethene	ug/L	50.0	49.8	100	69-133	
1,2-Dichloropropane	ug/L	50.0	49.4	99	80-120	
Dibromomethane	ug/L	50.0	46.2	92	80-120	
Bromodichloromethane	ug/L	50.0	47.7	95	80-120	
cis-1,3-Dichloropropene	ug/L	50.0	52.6	105	73-121	
4-Methyl-2-pentanone	ug/L	50.0	<50	92	70-130	
Toluene	ug/L	50.0	56.0	112	80-120	
trans-1,3-Dichloropropene	ug/L	50.0	50.8	102	73-118	
1,1,2-Trichloroethane	ug/L	50.0	48.4	97	80-120	
Tetrachloroethene	ug/L	50.0	48.7	97	70-120	
2-Hexanone	ug/L	50.0	60.6	121	70-130	
Dibromochloromethane	ug/L	50.0	46.4	93	76-116	
1,2-Dibromoethane (EDB)	ug/L	50.0	50.3	101	78-113	
Chlorobenzene	ug/L	50.0	48.9	98	80-120	
1,1,1,2-Tetrachloroethane	ug/L	50.0	46.1	92	77-120	
Ethylbenzene	ug/L	50.0	54.6	109	78-120	
m,p-Xylene	ug/L	100	105	105	78-122	
o-Xylene	ug/L	50.0	48.3	97	78-122	
Xylenes, total	ug/L	150	154	102	78-122	

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LABORATORY CONTROL SAMPLE: T145860-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Styrene	ug/L	50.0	50.1	100	76-121	
Bromoform	ug/L	50.0	43.4	87	71-115	
Isopropylbenzene	ug/L	50.0	52.7	105	78-127	
1,1,2,2-Tetrachloroethane	ug/L	50.0	44.1	88	81-124	
1,2,3-Trichloropropane	ug/L	50.0	46.1	92	69-116	
trans-1,4-Dichloro-2-butene	ug/L	50.0	46.1	92	50-150	
Bromobenzene	ug/L	50.0	53.1	106	80-120	
n-Propylbenzene	ug/L	50.0	59.9	120	76-123	
1,3,5-Trimethylbenzene	ug/L	50.0	53.4	107	81-125	
t-Butyl Benzene	ug/L	50.0	52.9	106	72-129	
1,2,4-Trimethylbenzene	ug/L	50.0	53.7	107	79-129	
sec-Butylbenzene	ug/L	50.0	53.5	107	73-133	
p-Isopropyltoluene	ug/L	50.0	53.2	106	76-129	
1,3-Dichlorobenzene	ug/L	50.0	51.0	102	80-120	
1,4-Dichlorobenzene	ug/L	50.0	48.7	97	80-120	
n-Butylbenzene	ug/L	50.0	56.1	112	81-127	
1,2,3-Trimethylbenzene	ug/L	50.0	55.9	112	50-150	
1,2-Dichlorobenzene	ug/L	50.0	48.3	97	80-120	
1,2-Dibromo-3-chloropropane	ug/L	50.0	44.0	88	58-123	
Hexachloroethane	ug/L	50.0	51.4	103	50-150	
1,2,4-Trichlorobenzene	ug/L	50.0	50.2	100	74-116	
Naphthalene	ug/L	50.0	48.8	98	63-118	
1,2,3-Trichlorobenzene	ug/L	50.0	48.7	97	74-114	
2-Methylnaphthalene	ug/L	50.0	55.7	111	50-150	
1,2-Dichloroethane-d4 (S)	%	30.0	27.8	93	68-133	
Toluene-d8 (S)	%	30.0	31.8	106	75-120	
4-Bromofluorobenzene (S)	%	30.0	27.4	91	69-119	
1,2-Dichlorobenzene-d4 (S)	%	30.0	29.9	100	72-127	

Trace Project ID: 23L1349
Client Project ID: Broad St. D5090

QC Batch: T145868
QC Batch Method: EPA 420.1

Analysis Description: Phenols, Total
Analysis Method: EPA 420.1

METHOD BLANK: T145868-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Phenolics	mg/L	<0.010	0.010	

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LABORATORY CONTROL SAMPLE: T145868-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Phenolics	mg/L	0.100	0.0820	82	73-110	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T145868-MSD1 Original: **23L1349-07**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Phenolics	mg/L	0	0.100	0.0880	0.0890	88	89	60-110	1	25	

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AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the laboratory is not accredited by NELAP for this compound
NA	Indicates that the compound is not available.

NOTE: Samples for volatiles that have been extracted with a water miscible solvent were corrected for the total volume of the solvent/water mixture.
Solid matrices Method Blanks are at 100% solids as such results are the same wet or dry.

DATA QUALIFIERS

Trace ID: 23L1349-01

Analysis: EPA 8270E

2-Fluorobiphenyl	Note 312 : The surrogate recovery was out of control high when compared to control limits. As there are no positive results, no data require qualification.
Nitrobenzene-d5	Note 312 : The surrogate recovery was out of control high when compared to control limits. As there are no positive results, no data require qualification.

Trace ID: 23L1349-02

Analysis: EPA 8270E

Nitrobenzene-d5	Note 802 : One of the base/neutral surrogate recoveries was outside the control limits. Since the other two base/neutral surrogates were within the control limits, no data require qualification.

Trace ID: 23L1349-03

Analysis: EPA 8270E

Nitrobenzene-d5	Note 802 : One of the base/neutral surrogate recoveries was outside the control limits. Since the other two base/neutral surrogates were within the control limits, no data require qualification.

Trace ID: 23L1349-04

Analysis: EPA 8270E

2-Fluorobiphenyl	Note 312 : The surrogate recovery was out of control high when compared to control limits. As there are no positive results, no data require qualification.
Nitrobenzene-d5	Note 312 : The surrogate recovery was out of control high when compared to control limits. As there are no positive results, no data require qualification.

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Terphenyl-d14	Note 312 : The surrogate recovery was out of control high when compared to control limits. As there are no positive results, no data require qualification.

Trace ID: 23L1349-06

Analysis: EPA 8270E

2-Fluorobiphenyl	Note 312 : The surrogate recovery was out of control high when compared to control limits. As there are no positive results, no data require qualification.
Acenaphthene	Note 112 : The LCS recovery was out of control high. Because there were no positive results for this analyte in this QC batch, no data require qualification.
Nitrobenzene-d5	Note 312 : The surrogate recovery was out of control high when compared to control limits. As there are no positive results, no data require qualification.

Trace ID: 23L1349-07

Analysis: EPA 6020B

Barium	Note 205 : The MS and MSD recoveries were out of control low. The result and reporting limit for this analyte, in the non-spiked version of the sample, must be considered estimated.

Analysis: EPA 8270E

Nitrobenzene-d5	Note 802 : One of the base/neutral surrogate recoveries was outside the control limits. Since the other two base/neutral surrogates were within the control limits, no data require qualification.

Trace ID: 23L1349-09

Analysis: EPA 6020B

Cadmium	Note 402.5 : The reporting limit was raised due to a dilution required because of sample matrix interference with the internal standards.
Copper	Note 402.5 : The reporting limit was raised due to a dilution required because of sample matrix interference with the internal standards.
Lead	Note 402.5 : The reporting limit was raised due to a dilution required because of sample matrix interference with the internal standards.
Selenium	Note 402.5 : The reporting limit was raised due to a dilution required because of sample matrix interference with the internal standards.
Silver	Note 402.5 : The reporting limit was raised due to a dilution required because of sample matrix interference with the internal standards.
Zinc	Note 402.5 : The reporting limit was raised due to a dilution required because of sample matrix interference with the internal standards.

Trace ID: 23L1349-10

Analysis: EPA 6020B

Silver	Note 402.5 : The reporting limit was raised due to a dilution required because of sample matrix interference with the internal standards.

Analysis: EPA 8270E

Nitrobenzene-d5	Note 802 : One of the base/neutral surrogate recoveries was outside the control limits. Since the other two base/neutral surrogates were within the control limits, no data require qualification.

Trace ID: 23L1349-11

Analysis: EPA 8270E

Acenaphthene	Note 112 : The LCS recovery was out of control high. Because there were no positive results for this analyte in this QC batch, no data require qualification.

CERTIFICATE OF ANALYSIS

Nitrobenzene-d5	Note 312 : The surrogate recovery was out of control high when compared to control limits. As there are no positive results, no data require qualification.
Terphenyl-d14	Note 312 : The surrogate recovery was out of control high when compared to control limits. As there are no positive results, no data require qualification.

Trace ID: 23L1349-12

Analysis: EPA 8270E

Acenaphthene	Note 112 : The LCS recovery was out of control high. Because there were no positive results for this analyte in this QC batch, no data require qualification.
Nitrobenzene-d5	Note 312 : The surrogate recovery was out of control high when compared to control limits. As there are no positive results, no data require qualification.
Terphenyl-d14	Note 312 : The surrogate recovery was out of control high when compared to control limits. As there are no positive results, no data require qualification.

Trace ID: 23L1349-13

Analysis: EPA 8270E

Acenaphthene	Note 112 : The LCS recovery was out of control high. Because there were no positive results for this analyte in this QC batch, no data require qualification.
Nitrobenzene-d5	Note 313 : The surrogate recovery was out of control high when compared to control limits. The result must be considered estimated.
Terphenyl-d14	Note 313 : The surrogate recovery was out of control high when compared to control limits. The result must be considered estimated.

Trace ID: 23L1349-14

Analysis: EPA 8270E

	Note 407 : The reporting limit was raised due to a post extraction dilution required based on matrix interference present in the sample.
Acenaphthene	Note 106 : The LCS recovery was out of control high. The result for this analyte, in this quality control batch, must be considered estimated.
Nitrobenzene-d5	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.

Trace ID: 23L1349-15

Analysis: EPA 8270E

	Note 407 : The reporting limit was raised due to a post extraction dilution required based on matrix interference present in the sample.
Acenaphthene	Note 106 : The LCS recovery was out of control high. The result for this analyte, in this quality control batch, must be considered estimated.
Nitrobenzene-d5	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.

Trace ID: 23L1349-16

Analysis: EPA 8270E

Nitrobenzene-d5	Note 802 : One of the base/neutral surrogate recoveries was outside the control limits. Since the other two base/neutral surrogates were within the control limits, no data require qualification.

Trace ID: 23L1349-17

Analysis: EPA 8270E

Nitrobenzene-d5	Note 802 : One of the base/neutral surrogate recoveries was outside the control limits. Since the other two base/neutral surrogates were within the control limits, no data require qualification.

Trace ID: T145626-BSD1

Analysis: EPA 608

alpha-Chlordane	Note 900 : The BSD recovery was out of control. Because the BS recovery and the RPD between the BS and the BSD were in control, no data require qualification.

Trace ID: T145630-BLK1

Analysis: EPA 8270E

Nitrobenzene-d5	Note 802 : One of the base/neutral surrogate recoveries was outside the control limits. Since the other two base/neutral surrogates were within the control limits, no data require qualification.

Trace ID: T145630-BS1

Analysis: EPA 8270E

Nitrobenzene-d5	Note 802 : One of the base/neutral surrogate recoveries was outside the control limits. Since the other two base/neutral surrogates were within the control limits, no data require qualification.

Trace ID: T145630-BSD1

Analysis: EPA 8270E

2-Fluorobiphenyl	Note 313 : The surrogate recovery was out of control high when compared to control limits. The result must be considered estimated.
Acenaphthene	Note 106 : The LCS recovery was out of control high. The result for this analyte, in this quality control batch, must be considered estimated.
Nitrobenzene-d5	Note 313 : The surrogate recovery was out of control high when compared to control limits. The result must be considered estimated.

Trace ID: T145702-MSD1

Analysis: EPA 6020B

Barium	Note 205 : The MS and MSD recoveries were out of control low. The result and reporting limit for this analyte, in the non-spiked version of the sample, must be considered estimated.

Trace ID: T145785-BS1

Analysis: EPA 8260D

Acrylonitrile	Note 112 : The LCS recovery was out of control high. Because there were no positive results for this analyte in this QC batch, no data require qualification.

Trace ID: T145823-BS1

Analysis: EPA 8260D

Acetone	Note 112 : The LCS recovery was out of control high. Because there were no positive results for this analyte in this QC batch, no data require qualification.
Acrylonitrile	Note 112 : The LCS recovery was out of control high. Because there were no positive results for this analyte in this QC batch, no data require qualification.

Trace ID: T145860-BS1

Analysis: EPA 8260D

Acetone	Note 112 : The LCS recovery was out of control high. Because there were no positive results for this analyte in this QC batch, no data require qualification.

CERTIFICATE OF ANALYSIS

Acrylonitrile	Note 112 : The LCS recovery was out of control high. Because there were no positive results for this analyte in this QC batch, no data require qualification.

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

TRACE
ANALYTICAL LABORATORIES, INC.

231-773-5998 Phone
888-979-4469 Fax
www.trace-labs.com

CHAIN-OF-CUSTODY RECORD

TRACE ANALYTICAL LABORATORIES, INC.
Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673
Phone 231.773.5998
Fax 888.979.4469
www.trace-labs.com

Page 1 of 2

Trace ID No. 23L1349

Report Results To:

Company Name: Point Blue, LLC
Report To: Mark Turner/Mark Seaman
Mailing Address: P.O. Box 304
City, State, Zip Code: St. Joseph, Michigan 49085
Office Phone: (269) 934-3737 Cell Phone:
Email Address: mark@pointblu.com, mat@pointblu.com

Bill To:

PO # D5090
Contact Name: Sandy Tjader-Kempski
Billing Address (if different): 2600 South Cleveland Road
City, State, Zip Code: St. Joseph, Michigan 49085
Phone Number: (269) 934-3737
Billing Email Address: sandy@pointblu.com

Trace Use:

Logged By: BV
Checked By: SB
Soil Volatiles Preserved (circle if applicable): MeOH Low Level Lab
Sampling Time:

Turnaround Requirements:

☒ Standard, 5-10 Days
☐ 3 Day*
☐ 1 Day*

*Results provided end of business day, requires prior approval.

Matrix Key:

S = Soil / Solid
W = Water
SL = Sludge
OI = Oil
WI = Wipes
LW = Liquid Waste
A = Air
D = Drinking Water

Project Name: Broad St. D5090
Sampled By: BKZ

Trace No.	Date Collected	Time Collected	Client Sample ID	Metals Field Filtered (Y / N)	Matrix	Number of Containers	Preservation: Cool	HCl	HNO_3	H_2SO_4	NaOH	Other	VOA	PNA	Michigan List (10) Metals	Low Level Mercury	Pesticides	Phenolics	PCBs	Oil and Grease				Possible Health Hazards?	Remarks
1	12/26/2023	1015	GP-2	N	W	5	X	X					X	X	X		X	X	X	X					
2	12/26/2023	1137	GP-4	N	W	5	X	X					X	X	X		X	X	X	X					
3	12/26/2023	1346	GP-6	N	W	5	X	X					X	X	X		X	X	X	X					
4	12/26/2023	1527	GP-9	N	W	5	X	X					X	X	X		X	X	X	X					
5	12/26/2023	0900	Field Blank	N	W	5	X	X					X												
6	12/26/2023	1635	GP-11	N	W	5	X	X					X	X	X		X	X	X	X					
7	12/27/2023	0838	GP-12	N	W	10	X	X					X	X	X		X	X	X	X					10 bottles
8	12/27/2023	0840	GP-12 Duplicate	N	W	3	X	X					X		X		X	X	X	X					No PNA DUP
9	12/27/2023	1008	GP-13	N	W	5	X	X					X	X	X		X	X	X	X					
10	12/27/2023	1650	GP-14	N	W	5	X	X					X	X	X		X	X	X	X					

Analysis Requested

Please Sign	Released By	Date	Time	Received By	Date	Time
1)		12/29/23	9:45			
3)				4)	12/29/23	14:22

In executing this Chain of Custody, the client acknowledges the terms as set forth at www.trace-labs.com/terms-of-agreement.

☐ Check this box if you would not like your samples analyzed if received outside of the conditions outlined in the Trace Sample Acceptance Policy at www.trace-labs.com/downloads.

Form 70-Z.1

CERTIFICATE OF ANALYSIS

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

TRACE
ANALYTICAL LABORATORIES, INC.

231-773-5998 Phone
888-979-4469 Fax
www.trace-labs.com

CHAIN-OF-CUSTODY RECORD

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

Phone 231.773.5998
Fax 888.979.4469
www.trace-labs.com

Trace ID No. 23L1349

Report Results To:

Company Name:	Point Blue, LLC
Report To:	Mark Turner/Mark Seaman
Mailing Address:	P.O. Box 304
City, State, Zip Code:	St. Joseph, Michigan 49085
Office Phone: (269) 934-3737	Cell Phone:
Email Address:	mark@pointblu.com, mat@pointblu.com

Bill To:

PO #	D5090
Contact Name:	Sandy Tjader-Kempski
Billing Address (if different):	2600 South Cleveland Road
City, State, Zip Code:	St. Joseph, Michigan 49085
Phone Number:	(269) 934-3737
Billing Email Address:	sandy@pointblu.com

Trace Use:

Logged By:	BV
Checked By:	SB
Soil Volatiles Preserved (circle if applicable):	MeOH / Low Level / Lab
Sampling Time:	

Turnaround Requirements:

☒ Standard, 5-10 Days
☐ 3 Day*
☐ 1 Day*

*Results provided end of business day, requires prior approval.

Matrix Key:

S = Soil / Solid
W = Water
SL = Sludge
OI = Oil
WI = Wipes
LW = Liquid Waste
A = Air
D = Drinking Water

Project Name: Broad St. D5090 — Sampled By: BKZ

Trace No.	Date Collected	Time Collected	Client Sample ID	Metals Field Filtered (Y / N)	Matrix	Number of Containers	Preservation: Cool	HCl	HNO_3	H_2SO_4	NaOH	Other	Analysis Requested: VOA	PNA	Michigan List (10) Metals	Low Level Mercury	Pesticides	Phenolics	PCBs	Oil and Grease				Remarks	Possible Health Hazards?
11	12/27/2023	1120	GP-15	N	W	5	×	×	×				X	X	X										
12	12/27/2023	1401	GP-17	N	W	10	×	×	×				X	X	X	X	X	X	X	X				10 bottles (Hot)	
13	12/27/2023	1448	GP-18	N	W	5	×	×	×				X	X	X									(Hot)	
14	12/27/2023	1601	GP-19	N	W	5	×	×	×				X	X	X									(Hot)	
15	12/27/2023	1603	GP-19 Duplicate	N	W	5	×	×	×				X	X	X									(Hot)	
16	12/27/2023	1626	GP-21	N	W	5	×	×	×				X	X	X									(Hot)	
17	12/27/2023	1656	GP-22	N	W	5	×	×	×				X	X	X										
18	12/26/2023	0730	Trip Blank	N	W	2	×	×					X												
19	12/27/2023	0812	Field Blank	N	W	2	×	×					X												
20	12/27/2023	0724	Trip Blank	N	W	2	×	×					X												

Please Sign	Released By	Date	Time	Received By	Date	Time
1)		12/28/23	9:45			
2)					12/28/23	14:22
3)						
4)						

In executing this Chain of Custody, the client acknowledges the terms as set forth at www.trace-labs.com/terms-of-agreement.

☐ Check this box if you would not like your samples analyzed if received outside of the conditions outlined in the Trace Sample Acceptance Policy at www.trace-labs.com/downloads.

Form 70-Z.1

CERTIFICATE OF ANALYSIS

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

TRACE ANALYTICAL LABORATORIES, INC.

231-773-5998 Phone
888-979-4469 Fax
www.trace-labs.com

23L1349
Point Blue, LLC
Project Manager: Jon Mink

Sample Log In Checklist

	Original Observation	Corrected Temperature	IR-9 (CF: 0.0°C)	IR-10 (CF: +0.1°C)	IR-12 (CF: 0.0°C)	SR1 (CF: -0.2°C)	SR2 (CF: -0.1°C)	Temp Blank	Client Sample
Date: 12/29/23									
Time: 14:22									
Initials: BV									
Package Description: Cooler									
Package Temp °C	0.5	0.5			✓				
Representative Sample Temp °C	1.1	0.9				✓		✓	

Sample Receipt

Yes / No

- [x] / [ ] Received on ice or other coolant
- [x] / [ ] Ice still present upon receipt
- [ ] / [x] Custody seals present — [ ] Yes [ ] No Custody seals intact (if applicable)
- [ ] Trace Courier [ ] Client Drop-off [ ] UPS [ ] Fed Ex [ ] US Mail [ ] Other

Sample Condition

Yes / No / N/A

- [x] / [ ] / [ ] All sample containers arrived unbroken and labeled
- [x] / [ ] / [ ] Sufficient sample to run requested analyses
- [x] / [ ] / [ ] Correct chemical preservative added to samples
- [ ] / [x] / [ ] Samples preserved at Trace
- [x] / [ ] / [ ] Chemical preservation verified, check EMD pH test strip used (if applicable)
  - [x] pH 0-2.5 (Lot: HC311850) [ ] pH 11.0-13.0 (Lot: HC022540) [ ] Other
- [ ] / [x] / [ ] Air bubbles absent from VOAs — Multiple VOA with various headspace

Chain of Custody (COC)

Yes / No

- [x] / [ ] All bottle labels agree with COC
- [x] / [ ] COC filled out properly
- [x] / [ ] COC signed by client

Notes:

Form 70-A.53
Effective 12/21/23

TRACE Analytical Laboratories, Inc.

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

908 N. Temperance Ave., Clovis, CA 93611 - Phone 559-275-2175 - www.metirigroup.com

NELAP Certification Number: CA00046
DoD-ELAP Certification Number: 4064.01
State Certification Number:

January 15, 2024

Rikki Lott
Fibertec Environmental Services
1914 Holloway Drive
Holt, MI 48842

RE: PFAS Testing
24A0011

Enclosed are the results of analyses for samples received by our laboratory on 1/3/2024. If you have any questions concerning this report, please feel free to contact me.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC and DoD QSM. Release of the hard copy has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Sincerely,

Steven Crupi For Eric Ogden
Project Manager

eric.ogden@metirigroup.com

Table of Contents

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

Fibertec Environmental Services	Project: PFAS Testing	
1914 Holloway Drive	Project Number: A19112	
Holt, MI 48842	Project Manager: Rikki Lott	Reported: 01/15/2024 12:35

Work Order Case Narrative

Discrepancy on COC sample relinquished date (1-2-23) ... Year is older (should be 1-2-24?). Confirmed with PM for fixing.

Also, no labels on containers. Lab labels applied to containers based on IDs on the bag packaging for the containers.

Analysis Case Narrative

537M: Manual integrations were performed for this method in accordance with APPL's SOP. Abbreviated flags for technical justification are provided as data qualifiers.

The extracted internal standard 13C8-PFOSA recovered below the lower control limit in sample 01 – GP-12.

The extracted internal standard 13C2-4:2FTS recovered above the upper control limit in sample 02 – GP-17.

Samples in this Report

Lab ID	Sample	Matrix	Date Sampled	Date Received
24A0011-01	GP-12	Water	12/27/2023 08:38	01/03/2024
24A0011-02	GP-17	Water	12/27/2023 14:01	01/03/2024

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

Fibertec Environmental Services	Project: PFAS Testing	
1914 Holloway Drive	Project Number: A19112	
Holt, MI 48842	Project Manager: Rikki Lott	Reported: 01/15/2024 12:35

Sample Results

Sample: GP-12

24A0011-01 (Water)

Analyte	Result	Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
Per- and Polyfluoroalkyl Substances									
PFBA	ND		3.0		ng/L	01/11/24	1	EPA 537M	BDA0100
PFPeA	ND		1.5		ng/L	01/11/24	1	EPA 537M	BDA0100
PFHxA	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
PFHpA	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
PFOA	ND	MI4,	0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
PFNA	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
PFDA	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
PFUnA	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
PFDoDA	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
PFTrDA	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
PFTeDA	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
PFBS	0.75		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
PFPeS	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
PFHxS	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
PFHpS	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
PFOS	ND	IR1, MI4,	0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
PFNS	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
PFDS	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
4:2FTS	ND		3.0		ng/L	01/11/24	1	EPA 537M	BDA0100
6:2FTS	ND		3.0		ng/L	01/11/24	1	EPA 537M	BDA0100
8:2FTS	ND		3.0		ng/L	01/11/24	1	EPA 537M	BDA0100
FOSA	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
NMeFOSAA	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
EtFOSAA	ND		0.75		ng/L	01/11/24	1	EPA 537M	BDA0100
HFPO-DA	ND		1.5		ng/L	01/11/24	1	EPA 537M	BDA0100
ADONA	ND		1.5		ng/L	01/11/24	1	EPA 537M	BDA0100
9Cl-PF3ONS	ND		1.5		ng/L	01/11/24	1	EPA 537M	BDA0100
11Cl-PF3OUDS	ND		1.5		ng/L	01/11/24	1	EPA 537M	BDA0100
Surrogate: 13C4-PFBA	*74.3%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C5-PFPEA	*89.7%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C5-PFHXA	*85.5%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C4-PFHPA	*84.3%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C8-PFOA	*87.5%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C9-PFNA	*80.2%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C6-PFDA	*84.6%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C7-PFUnA	*80.6%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C2-PFDOA	*78.8%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C2-PFTEDA	*73.0%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C3-PFBS	*81.6%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C3-PFHXS	*83.6%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C8-PFOS	*85.2%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C2-4:2FTS	*110%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C2-6:2FTS	*82.3%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C2-8:2FTS	*74.6%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C8-PFOSA	*46.5%*	S1	*50-150*			*01/11/24*	*1*	*EPA 537M*	

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

Fibertec Environmental Services	Project: PFAS Testing	
1914 Holloway Drive	Project Number: A19112	
Holt, MI 48842	Project Manager: Rikki Lott	Reported: 01/15/2024 12:35

Sample Results
(Continued)

Sample: GP-12 (Continued)
24A0011-01 (Water)

Analyte	Result /Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
Per- and Polyfluoroalkyl Substances (Continued)								
Surrogate: D3-NMEFOSAA	*72.2%*	*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: D5-NETFOSAA	*77.8%*	*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C3-HFPO-DA	*79.8%*	*50-150*			*01/11/24*	*1*	*EPA 537M*	

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

Fibertec Environmental Services	Project: PFAS Testing	
1914 Holloway Drive	Project Number: A19112	
Holt, MI 48842	Project Manager: Rikki Lott	Reported: 01/15/2024 12:35

Sample Results
(Continued)

Sample: GP-17
24A0011-02 (Water)

Analyte	Result	Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
Per- and Polyfluoroalkyl Substances									
PFBA	4.3	MI6	3.0		ng/L	01/11/24	1	EPA 537M	BDA0100
PFPeA	1.6		1.5		ng/L	01/11/24	1	EPA 537M	BDA0100
PFHxA	1.2		0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
PFHpA	ND		0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
PFOA	0.77	MI4	0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
PFNA	ND		0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
PFDA	ND		0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
PFUnA	ND		0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
PFDoDA	ND		0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
PFTrDA	ND		0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
PFTeDA	ND		0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
PFBS	3.0		0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
PFPeS	ND	MI2,	0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
PFHxS	ND	MI5,	0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
PFHpS	ND		0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
PFOS	0.76	MI4	0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
PFNS	ND		0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
PFDS	ND		0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
4:2FTS	ND		3.0		ng/L	01/11/24	1	EPA 537M	BDA0100
6:2FTS	ND		3.0		ng/L	01/11/24	1	EPA 537M	BDA0100
8:2FTS	ND		3.0		ng/L	01/11/24	1	EPA 537M	BDA0100
FOSA	ND	MI4,	0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
NMeFOSAA	ND		0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
EtFOSAA	ND		0.74		ng/L	01/11/24	1	EPA 537M	BDA0100
HFPO-DA	ND		1.5		ng/L	01/11/24	1	EPA 537M	BDA0100
ADONA	ND		1.5		ng/L	01/11/24	1	EPA 537M	BDA0100
9Cl-PF3ONS	ND		1.5		ng/L	01/11/24	1	EPA 537M	BDA0100
11Cl-PF3OUDS	ND		1.5		ng/L	01/11/24	1	EPA 537M	BDA0100
Surrogate: 13C4-PFBA	*65.7%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C5-PFPEA	*77.1%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C5-PFHXA	*86.3%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C4-PFHPA	*81.5%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C8-PFOA	*88.6%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C9-PFNA	*80.7%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C6-PFDA	*81.0%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C7-PFUnA	*73.0%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C2-PFDOA	*67.9%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C2-PFTEDA	*57.6%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C3-PFBS	*82.0%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C3-PFHXS	*87.8%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C8-PFOS	*81.8%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C2-4:2FTS	*153%*	S2	*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C2-6:2FTS	*98.6%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C2-8:2FTS	*74.8%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C8-PFOSA	*53.5%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: D3-NMEFOSAA	*62.0%*		*50-150*			*01/11/24*	*1*	*EPA 537M*	

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

Fibertec Environmental Services	Project: PFAS Testing	
1914 Holloway Drive	Project Number: A19112	
Holt, MI 48842	Project Manager: Rikki Lott	Reported: 01/15/2024 12:35

Sample Results
(Continued)

Sample: GP-17 (Continued)
24A0011-02 (Water)

Analyte	Result /Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
Per- and Polyfluoroalkyl Substances (Continued)								
Surrogate: D5-NETFOSAA	*67.8%*	*50-150*			*01/11/24*	*1*	*EPA 537M*	
Surrogate: 13C3-HFPO-DA	*76.6%*	*50-150*			*01/11/24*	*1*	*EPA 537M*	

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

Fibertec Environmental Services	Project: PFAS Testing	
1914 Holloway Drive	Project Number: A19112	
Holt, MI 48842	Project Manager: Rikki Lott	Reported: 01/15/2024 12:35

PREPARATION BATCH SUMMARY

EPA 537M

Laboratory: APPL, LLC

Client: Fibertec Environmental Services

Batch: BDA0100 Batch Matrix: Water Preparation: Table B-15

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT mL	FINAL VOL. mL
GP-12	24A0011-01	01/10/24 08:39	265.87	2.00
GP-17	24A0011-02	01/10/24 08:39	269.22	2.00
Blank	BDA0100-BLK1	01/10/24 08:39	250.00	2.00
LCS	BDA0100-BS1	01/10/24 08:39	250.00	2.00
LCS Dup	BDA0100-BSD1	01/10/24 08:39	250.00	2.00
MRL Check	BDA0100-MRL1	01/10/24 08:39	250.00	2.00

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Fibertec Environmental Services	Project: PFAS Testing	
1914 Holloway Drive	Project Number: A19112	
Holt, MI 48842	Project Manager: Rikki Lott	Reported: 01/15/2024 12:35

Quality Control

Per- and Polyfluoroalkyl Substances

Analyte	Result/ Qual	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Method: EPA 537M										
Batch: BDA0100 - Table B-15										
Blank (BDA0100-BLK1)					Prepared: 01/10/24 08:39 Analyzed: 01/11/24 14:11					
PFBA	ND	3.2		ng/L						
PFPeA	ND	1.6		ng/L						
PFHxA	ND	0.80		ng/L						
PFHpA	ND	0.80		ng/L						
PFOA	ND	0.80		ng/L						
PFNA	ND	0.80		ng/L						
PFDA	ND	0.80		ng/L						
PFUnA	ND	0.80		ng/L						
PFDoA	ND	0.80		ng/L						
PFTrDA	ND	0.80		ng/L						
PFTeDA	ND	0.80		ng/L						
PFBS	ND	0.80		ng/L						
PFPeS	ND	0.80		ng/L						
PFHxS	ND	0.80		ng/L						
PFHpS	ND	0.80		ng/L						
PFOS	ND	0.80		ng/L						
PFNS	ND	0.80		ng/L						
PFDS	ND	0.80		ng/L						
4:2FTS	ND	3.2		ng/L						
6:2FTS	ND	3.2		ng/L						
8:2FTS	ND	3.2		ng/L						
PFOSA	ND	0.80		ng/L						
NMeFOSAA	ND	0.80		ng/L						
NEtFOSAA	ND	0.80		ng/L						
HFPO-DA	ND	1.6		ng/L						
ADONA	ND	1.6		ng/L						
9Cl-PF3ONS	ND	1.6		ng/L						
11Cl-PF3OUDS	ND	1.6		ng/L						
Surrogate: 13C4-PFBA	*56.8*			*ng/L*	*64.0*		*88.8*	*50-150*		
Surrogate: 13C5-PFPEA	*28.6*			*ng/L*	*32.0*		*89.5*	*50-150*		
Surrogate: 13C5-PFHXA	*14.0*			*ng/L*	*16.0*		*87.4*	*50-150*		
Surrogate: 13C4-PFHPA	*13.6*			*ng/L*	*16.0*		*85.0*	*50-150*		
Surrogate: 13C8-PFOA	*13.8*			*ng/L*	*16.0*		*86.2*	*50-150*		
Surrogate: 13C9-PFNA	*6.97*			*ng/L*	*8.00*		*87.1*	*50-150*		
Surrogate: 13C6-PFDA	*7.02*			*ng/L*	*8.00*		*87.8*	*50-150*		
Surrogate: 13C7-PFUnA	*6.51*			*ng/L*	*8.00*		*81.4*	*50-150*		
Surrogate: 13C2-PFDOA	*6.34*			*ng/L*	*8.00*		*79.3*	*50-150*		
Surrogate: 13C2-PFTEDA	*6.21*			*ng/L*	*8.00*		*77.6*	*50-150*		
Surrogate: 13C3-PFBS	*13.5*			*ng/L*	*16.0*		*84.6*	*50-150*		
Surrogate: 13C3-PFHXS	*13.6*			*ng/L*	*16.0*		*85.2*	*50-150*		
Surrogate: 13C8-PFOS	*13.6*			*ng/L*	*16.0*		*85.0*	*50-150*		
Surrogate: 13C2-4:2FTS	*29.2*			*ng/L*	*32.0*		*91.2*	*50-150*		
Surrogate: 13C2-6:2FTS	*26.1*			*ng/L*	*32.0*		*81.7*	*50-150*		
Surrogate: 13C2-8:2FTS	*24.5*			*ng/L*	*32.0*		*76.6*	*50-150*		
Surrogate: 13C8-PFOSA	*6.14*			*ng/L*	*16.0*		*38.4*	*50-150*		
Surrogate: D3-NMEFOSAA	*22.4*			*ng/L*	*32.0*		*70.1*	*50-150*		
Surrogate: D5-NETFOSAA	*24.9*			*ng/L*	*32.0*		*77.8*	*50-150*		

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

Fibertec Environmental Services	Project: PFAS Testing	
1914 Holloway Drive	Project Number: A19112	
Holt, MI 48842	Project Manager: Rikki Lott	Reported: 01/15/2024 12:35

Quality Control
(Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/ Qual	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Blank (BDA0100-BLK1)					Prepared: 01/10/24 08:39 Analyzed: 01/11/24 14:11					
Surrogate: 13C3-HFPO-DA	*53.0*			*ng/L*	*64.0*		*82.7*	*50-150*		
LCS (BDA0100-BS1)					Prepared: 01/10/24 08:39 Analyzed: 01/11/24 14:32					
PFBA	35.1			ng/L	32.0		110	70-140		
PFPeA	16.6			ng/L	16.0		103	65-135		
PFHxA	8.66			ng/L	8.00		108	70-145		
PFHpA	8.56			ng/L	8.00		107	70-150		
PFOA	8.54			ng/L	8.00		107	70-150		
PFNA	8.94			ng/L	8.00		112	70-150		
PFDA	8.95			ng/L	8.00		112	70-140		
PFUnA	8.89			ng/L	8.00		111	70-145		
PFDoA	8.47			ng/L	8.00		106	70-140		
PFTrDA	8.09			ng/L	8.00		101	65-140		
PFTeDA	9.28			ng/L	8.00		116	60-140		
PFBS	7.94			ng/L	7.08		112	60-145		
PFPeS	8.12			ng/L	7.52		108	65-140		
PFHxS	7.98			ng/L	7.32		109	65-145		
PFHpS	8.32			ng/L	7.64		109	70-150		
PFOS	7.88			ng/L	7.44		106	55-150		
PFNS	8.28			ng/L	7.68		108	65-145		
PFDS	8.32			ng/L	7.72		108	60-145		
4:2FTS	31.9			ng/L	30.0		106	70-145		
6:2FTS	33.4			ng/L	30.4		110	65-155		
8:2FTS	34.4			ng/L	30.7		112	60-150		
PFOSA	8.03			ng/L	8.00		100	70-145		
NMeFOSAA	9.11			ng/L	8.00		114	50-140		
NEtFOSAA	8.21 MI4			ng/L	8.00		103	70-145		
HFPO-DA	7.97			ng/L	8.00		99.6	70-140		
ADONA	8.36			ng/L	7.56		111	70-145		
9Cl-PF3ONS	7.65			ng/L	7.48		102	70-155		
11Cl-PF3OUDS	7.61			ng/L	7.56		101	55-160		
Surrogate: 13C4-PFBA	*55.4*			*ng/L*	*64.0*		*86.5*	*50-150*		
Surrogate: 13C5-PFPEA	*30.2*			*ng/L*	*32.0*		*94.3*	*50-150*		
Surrogate: 13C5-PFHXA	*14.1*			*ng/L*	*16.0*		*88.0*	*50-150*		
Surrogate: 13C4-PFHPA	*13.9*			*ng/L*	*16.0*		*87.0*	*50-150*		
Surrogate: 13C8-PFOA	*13.7*			*ng/L*	*16.0*		*85.6*	*50-150*		
Surrogate: 13C9-PFNA	*6.65*			*ng/L*	*8.00*		*83.1*	*50-150*		
Surrogate: 13C6-PFDA	*6.94*			*ng/L*	*8.00*		*86.7*	*50-150*		
Surrogate: 13C7-PFUnA	*6.61*			*ng/L*	*8.00*		*82.6*	*50-150*		
Surrogate: 13C2-PFDOA	*6.80*			*ng/L*	*8.00*		*85.0*	*50-150*		
Surrogate: 13C2-PFTEDA	*6.02*			*ng/L*	*8.00*		*75.2*	*50-150*		
Surrogate: 13C3-PFBS	*13.6*			*ng/L*	*16.0*		*85.0*	*50-150*		
Surrogate: 13C3-PFHXS	*13.8*			*ng/L*	*16.0*		*86.5*	*50-150*		
Surrogate: 13C8-PFOS	*13.5*			*ng/L*	*16.0*		*84.1*	*50-150*		
Surrogate: 13C2-4:2FTS	*28.1*			*ng/L*	*32.0*		*87.9*	*50-150*		
Surrogate: 13C2-6:2FTS	*25.9*			*ng/L*	*32.0*		*81.0*	*50-150*		
Surrogate: 13C2-8:2FTS	*24.6*			*ng/L*	*32.0*		*77.0*	*50-150*		
Surrogate: 13C8-PFOSA	*6.84*			*ng/L*	*16.0*		*42.8*	*50-150*		
Surrogate: D3-NMEFOSAA	*23.3*			*ng/L*	*32.0*		*72.8*	*50-150*		
Surrogate: D5-NETFOSAA	*24.6*			*ng/L*	*32.0*		*76.8*	*50-150*		

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Fibertec Environmental Services	Project: PFAS Testing	
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Holt, MI 48842	Project Manager: Rikki Lott	Reported: 01/15/2024 12:35

Quality Control
(Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/ Qual	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
LCS (BDA0100-BS1)					Prepared: 01/10/24 08:39		Analyzed: 01/11/24 14:32			
Surrogate: 13C3-HFPO-DA	*54.2*			*ng/L*	*64.0*		*84.7*	*50-150*		
LCS Dup (BDA0100-BSD1)					Prepared: 01/10/24 08:39		Analyzed: 01/11/24 14:53			
PFBA	34.3			ng/L	32.0		107	70-140	2.50	30
PFPeA	16.8			ng/L	16.0		105	65-135	1.71	30
PFHxA	8.48			ng/L	8.00		106	70-145	2.19	30
PFHpA	8.83			ng/L	8.00		110	70-150	3.10	30
PFOA	8.89			ng/L	8.00		111	70-150	4.02	30
PFNA	8.95			ng/L	8.00		112	70-150	0.213	30
PFDA	8.75			ng/L	8.00		109	70-140	2.18	30
PFUnA	8.96			ng/L	8.00		112	70-145	0.874	30
PFDoA	9.49			ng/L	8.00		119	70-140	11.4	30
PFTrDA	8.97			ng/L	8.00		112	65-140	10.3	30
PFTeDA	9.15			ng/L	8.00		114	60-140	1.36	30
PFBS	7.91			ng/L	7.08		112	60-145	0.328	30
PFPeS	8.09			ng/L	7.52		108	65-140	0.383	30
PFHxS	7.73			ng/L	7.32		106	65-145	3.11	30
PFHpS	8.46			ng/L	7.64		111	70-150	1.65	30
PFOS	7.89 MI4			ng/L	7.44		106	55-150	0.148	30
PFNS	8.45			ng/L	7.68		110	65-145	2.06	30
PFDS	8.28			ng/L	7.72		107	60-145	0.522	30
4:2FTS	33.9			ng/L	30.0		113	70-145	6.01	30
6:2FTS	34.0			ng/L	30.4		112	65-155	1.90	30
8:2FTS	34.8			ng/L	30.7		113	60-150	1.08	30
PFOSA	7.81			ng/L	8.00		97.7	70-145	2.78	30
NMeFOSAA	8.67			ng/L	8.00		108	50-140	4.93	30
NEtFOSAA	7.80 MI4			ng/L	8.00		97.5	70-145	5.05	30
HFPO-DA	8.15			ng/L	8.00		102	70-140	2.26	30
ADONA	7.96			ng/L	7.56		105	70-145	4.86	30
9Cl-PF3ONS	7.85			ng/L	7.48		105	70-155	2.53	30
11Cl-PF3OUDS	7.64			ng/L	7.56		101	55-160	0.408	30
Surrogate: 13C4-PFBA	*55.2*			*ng/L*	*64.0*		*86.3*	*50-150*		
Surrogate: 13C5-PFPEA	*29.1*			*ng/L*	*32.0*		*90.9*	*50-150*		
Surrogate: 13C5-PFHXA	*14.2*			*ng/L*	*16.0*		*88.8*	*50-150*		
Surrogate: 13C4-PFHPA	*13.4*			*ng/L*	*16.0*		*83.7*	*50-150*		
Surrogate: 13C8-PFOA	*13.7*			*ng/L*	*16.0*		*85.5*	*50-150*		
Surrogate: 13C9-PFNA	*6.61*			*ng/L*	*8.00*		*82.7*	*50-150*		
Surrogate: 13C6-PFDA	*7.13*			*ng/L*	*8.00*		*89.1*	*50-150*		
Surrogate: 13C7-PFUnA	*6.64*			*ng/L*	*8.00*		*83.0*	*50-150*		
Surrogate: 13C2-PFDOA	*6.42*			*ng/L*	*8.00*		*80.2*	*50-150*		
Surrogate: 13C2-PFTEDA	*6.19*			*ng/L*	*8.00*		*77.4*	*50-150*		
Surrogate: 13C3-PFBS	*13.8*			*ng/L*	*16.0*		*86.0*	*50-150*		
Surrogate: 13C3-PFHXS	*14.2*			*ng/L*	*16.0*		*88.7*	*50-150*		
Surrogate: 13C8-PFOS	*14.0*			*ng/L*	*16.0*		*87.3*	*50-150*		
Surrogate: 13C2-4:2FTS	*27.2*			*ng/L*	*32.0*		*85.1*	*50-150*		
Surrogate: 13C2-6:2FTS	*24.8*			*ng/L*	*32.0*		*77.6*	*50-150*		
Surrogate: 13C2-8:2FTS	*24.0*			*ng/L*	*32.0*		*74.9*	*50-150*		
Surrogate: 13C8-PFOSA	*5.97*			*ng/L*	*16.0*		*37.3*	*50-150*		
Surrogate: D3-NMEFOSAA	*23.2*			*ng/L*	*32.0*		*72.5*	*50-150*		
Surrogate: D5-NETFOSAA	*25.4*			*ng/L*	*32.0*		*79.2*	*50-150*		

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Fibertec Environmental Services	Project: PFAS Testing	
1914 Holloway Drive	Project Number: A19112	
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Quality Control
(Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/ Qual	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
LCS Dup (BDA0100-BSD1)					Prepared: 01/10/24 08:39 Analyzed: 01/11/24 14:53					
Surrogate: 13C3-HFPO-DA	*55.4*			*ng/L*	*64.0*		*86.5*	*50-150*		
MRL Check (BDA0100-MRL1)					Prepared: 01/10/24 08:39 Analyzed: 01/11/24 15:14					
PFBA	6.86			ng/L	6.40		107	70-140		
PFPeA	3.17			ng/L	3.20		98.9	65-135		
PFHxA	1.57			ng/L	1.60		98.2	70-145		
PFHpA	1.63			ng/L	1.60		102	70-150		
PFOA	1.67			ng/L	1.60		105	70-150		
PFNA	1.66			ng/L	1.60		104	70-150		
PFDA	1.64			ng/L	1.60		103	70-140		
PFUnA	1.68			ng/L	1.60		105	70-145		
PFDoA	1.66			ng/L	1.60		103	70-140		
PFTrDA	1.58			ng/L	1.60		98.8	65-140		
PFTeDA	1.83			ng/L	1.60		115	60-140		
PFBS	1.55			ng/L	1.42		110	60-145		
PFPeS	1.52			ng/L	1.50		101	65-140		
PFHxS	1.50			ng/L	1.46		103	65-145		
PFHpS	1.59			ng/L	1.53		104	70-150		
PFOS	1.58 MI4			ng/L	1.49		107	55-150		
PFNS	1.61			ng/L	1.54		105	65-145		
PFDS	1.57			ng/L	1.54		102	60-145		
4:2FTS	5.94			ng/L	6.00		99.0	70-145		
6:2FTS	6.04			ng/L	6.08		99.3	65-155		
8:2FTS	6.65			ng/L	6.14		108	60-150		
PFOSA	1.46			ng/L	1.60		91.5	70-145		
NMeFOSAA	1.52			ng/L	1.60		94.9	50-140		
NEtFOSAA	1.42 MI4			ng/L	1.60		88.4	70-145		
HFPO-DA	1.71			ng/L	1.60		107	70-140		
ADONA	1.47 , J			ng/L	1.51		97.5	70-145		
9Cl-PF3ONS	1.44 , J			ng/L	1.50		96.1	70-155		
11Cl-PF3OUDS	1.30 , J			ng/L	1.51		86.0	55-160		
Surrogate: 13C4-PFBA	*58.4*			*ng/L*	*64.0*		*91.2*	*50-150*		
Surrogate: 13C5-PFPEA	*29.7*			*ng/L*	*32.0*		*92.7*	*50-150*		
Surrogate: 13C5-PFHXA	*14.5*			*ng/L*	*16.0*		*90.9*	*50-150*		
Surrogate: 13C4-PFHPA	*13.9*			*ng/L*	*16.0*		*87.2*	*50-150*		
Surrogate: 13C8-PFOA	*14.7*			*ng/L*	*16.0*		*91.7*	*50-150*		
Surrogate: 13C9-PFNA	*6.80*			*ng/L*	*8.00*		*85.0*	*50-150*		
Surrogate: 13C6-PFDA	*6.93*			*ng/L*	*8.00*		*86.6*	*50-150*		
Surrogate: 13C7-PFUnA	*6.87*			*ng/L*	*8.00*		*85.9*	*50-150*		
Surrogate: 13C2-PFDOA	*6.40*			*ng/L*	*8.00*		*79.9*	*50-150*		
Surrogate: 13C2-PFTEDA	*6.30*			*ng/L*	*8.00*		*78.8*	*50-150*		
Surrogate: 13C3-PFBS	*13.4*			*ng/L*	*16.0*		*83.7*	*50-150*		
Surrogate: 13C3-PFHXS	*14.0*			*ng/L*	*16.0*		*87.5*	*50-150*		
Surrogate: 13C8-PFOS	*14.1*			*ng/L*	*16.0*		*88.0*	*50-150*		
Surrogate: 13C2-4:2FTS	*25.9*			*ng/L*	*32.0*		*80.9*	*50-150*		
Surrogate: 13C2-6:2FTS	*25.3*			*ng/L*	*32.0*		*79.1*	*50-150*		
Surrogate: 13C2-8:2FTS	*23.2*			*ng/L*	*32.0*		*72.4*	*50-150*		
Surrogate: 13C8-PFOSA	*6.83*			*ng/L*	*16.0*		*42.7*	*50-150*		
Surrogate: D3-NMEFOSAA	*24.3*			*ng/L*	*32.0*		*76.1*	*50-150*		
Surrogate: D5-NETFOSAA	*26.5*			*ng/L*	*32.0*		*82.7*	*50-150*		

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

Fibertec Environmental Services	Project: PFAS Testing	
1914 Holloway Drive	Project Number: A19112	
Holt, MI 48842	Project Manager: Rikki Lott	Reported: 01/15/2024 12:35

Quality Control
(Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/ Qual	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MRL Check (BDA0100-MRL1)					Prepared: 01/10/24 08:39 Analyzed: 01/11/24 15:14					
Surrogate: 13C3-HFPO-DA	*55.6*			*ng/L*	*64.0*		*86.8*	*50-150*		

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

Fibertec Environmental Services	Project: PFAS Testing	
1914 Holloway Drive	Project Number: A19112	
Holt, MI 48842	Project Manager: Rikki Lott	Reported: 01/15/2024 12:35

Notes and Definitions

Item	Definition
IR1	Ion ratio below the lower control limit
J	Estimated value
MI2	Manual integration, non-target peak interference
MI4	Manual integration, peak unsplit
MI5	Manual integration, whole peak was not integrated
MI6	Manual integration, wrong peak integrated
S1	Surrogate recovered below the lower control limit
S2	Surrogate recovered above the upper control limit
U	Not detected
Dry	Sample results reported on a dry weight basis.
MDL	Method Detection Limit (only displays if reported to the MDL)
ND	Analyte NOT DETECTED at or above the reporting limit.
DF	Dilution Factor
DL	Detection Limit
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.

PQL, Practical Quantitation Limit = Method Reporting Limit (MRL).

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

Fibertec Environmental Services	Project: PFAS Testing	
1914 Holloway Drive	Project Number: A19112	
Holt, MI 48842	Project Manager: Rikki Lott	Reported: 01/15/2024 12:35

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

WORK ORDER

24A0011

Printed: 01/15/2024 12:36 pm

Project: **PFAS Testing**
Project Number: **A19112**
Project Manager: **Eric Ogden**
PO Number: **NA**

Report To:
Fibertec Environmental Services
Rikki Lott
1914 Holloway Drive
Holt, MI 48842
Phone: (517) 699-0345
Fax: (517) 699-0388

Invoice To:
Fibertec Environmental Services
Kathy Jones
1914 Holloway Drive
Holt, MI 48842
Phone: (517) 699-0345
Fax: (517) 699-0388

Date Received: 01/03/2024 09:45 AM
Date Due: 01/17/2024 (10.00 day TAT)

Logged In By: Sophia Herrera
Received By: Landyn Phillips

Analysis	Comments

24A0011-01 GP-12 [Water] Sampled 12/27/2023 8:38:00AM
537M 28-compound list

24A0011-02 GP-17 [Water] Sampled 12/27/2023 2:01:00PM
537M 28-compound list

24A0011 **Sample Receipt Log**

Default Cooler

Samples Received at: **2.2°C**

Custody Seals	No	Were all containers sealed in separate bags?	Yes
Containers Intact	Yes	Did all containers arrive in good condition?	Yes
COC/Labels Agree	Yes	Correct containers/preserv. for tests indicated?	Yes
Preservation Confirmed	Yes	Sufficient volume sent for tests requested?	Yes
Received On Ice	Yes	Were bubbles absent in volatile samples?	Yes
Was a chain of custody received?	Yes	Sufficient remaining holding time for analyses?	Yes
COCs complete/signed in the appropriate places?	Yes	pH of non-VOA preserved containers documented?	No
Sample labels complete? Sample ID, date/time, etc.	Yes	Unpreserved vials received for VOA analysis?	No
Did all container labels agree with COCs?	Yes	If "yes", are unpreserved VOA vials noted on Work	No

24A0011

Fibertec environmental services

Analytical Laboratory
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Industrial Hygiene Services, Inc.
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0382
email: asbestos@fibertecihs.com

Geoprobe
11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody #

Client Name: Point Blue
Contact Person: Mark Turner
Project Name/ Number: Broad Street/D5090
Email distribution list: mat@pointblu.com, mark@pointblu.com
Quote# 00001600
Purchase Order# D5090

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PARAMETERS: PFAS 537 Modified	HOLD SAMPLE	Remarks:
12/27/23	0838		GP-12	GW	1	✓		1 - 1,000 mL HDPE Plastic
12/27/23	1401		GP-17	GW	1	✓		1 - 1,000 mL HDPE Plastic

Matrix Code			
S	Soil	GW	Ground Water
A	Air	SW	Surface Water
O	Oil	WW	Waste Water
P	Wipe	X	Other: Specify

Deliverables	
	Level 2
	Level 3
	Level 4
	EDD

Comments:

Sampled/Relinquished By: RM	Date/ Time 1-2-23 1230	Received By:
Relinquished By:	Date/ Time	Received By:
Relinquished By:	Date/ Time 1/3/24 0945	Received By Laboratory:

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

_____1 bus. day _____2 bus. days _____3 bus. days _____4 bus. days

X 5-7 bus. days (standard) Other (specify time/date requirement): _____

LAB USE ONLY

Fibertec project number:

Temperature upon receipt at Lab: 2.3/2.2 °C

Please see back for terms and conditions

No Custody Seal

Appendix F

Environmental Information

Environmental Information
City of St. Joseph CSO Compliance Project - St. Joseph, Michigan

This information summary is intended to inform construction/utility workers involved with the proposed installation of subsurface utilities (sewage piping and control structures) at 1160 Broad Street (DPW parcel), 1183 Broad Street (Pri Mar Petroleum, Inc. parcel), 1223 Broad Street (Leco Corporation parcel), and the right-of-way of Broad Street of the environmental condition of soil and groundwater.

Nearby historic commercial and industrial operations have included foundries, manufacturing of doors, an automotive garage, bulk oil, fuel storage, and public works. Environmental contaminants are present in subsurface soil and groundwater at concentrations which pose a potential risk to human health and the environment. Sample results tables and a sample location figure are attached. Potential human exposure pathways and soil/groundwater management guidance are presented below:

- Ingestion of soil and groundwater should be avoided.
- Contaminant levels are below skin contact exposure concerns for utility workers; however, typical construction personal protective equipment (PPE) should include work gloves, work clothing, steel-toed safety boots, hard hat, safety vest, and safety glasses.
- Contaminant levels are below inhalation exposure concerns (both particulates and vapors).
- It is noted that soils exhibiting staining and strong odors of petroleum will likely be encountered on the Pri Mar Petroleum, Inc. parcel, however, these soils do not pose a health or fire and explosion risk to utility workers.
- Suitable soils excavated can be repurposed on-site in the same general area from where it was removed.
- Excess soil not suitable for reuse can be relocated from the associated parcels to a Type II landfill designed for such material. Soils from the project area have been waste characterized for landfill approval (data available upon request).
- Excess soil which will be stockpiled for an extended period shall be placed on an impervious surface or plastic sheeting and appropriately covered with plastic sheeting.
- Excess soil may be relocated off-site other than a landfill only if the soil is tested to determine that it is "clean" in accordance with its volume based on the table below and in accordance with the MDEQ Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria dated August 2002. Analyses shall include VOCs, PNAs, and Michigan List metals.

Table 2.1 Number of Biased Samples for Waste Piles

Volume (cubic yards)	0-25	26-100	101-500	501-1,000	1,001-2,000	> 2,000
Number of samples (depending on basis of bias)	3-4	6-8	8-10	10-12	13-15	15 + 3 for every additional 500 cubic yards

- Groundwater is shallow across much of the project area (4 to 5 feet below grade) and dewatering activities will be necessary. The presence of metals, VOCs, and PNAs have been identified at many locations at concentrations that exceed established criteria for unregulated discharge. Approval has been obtained to discharge dewatering fluids to the Benton Harbor-St. Joseph Wastewater Treatment Plant (WWTP). Arrangements would need to be made with the WWTP regarding timing, volumes, metering, and permitting.

Based on the presence of contamination in the subsurface soil and groundwater, appropriate precautions should be taken to minimize exposure and, as with any construction project, activities should be performed in a manner that minimizes the generation of dust.

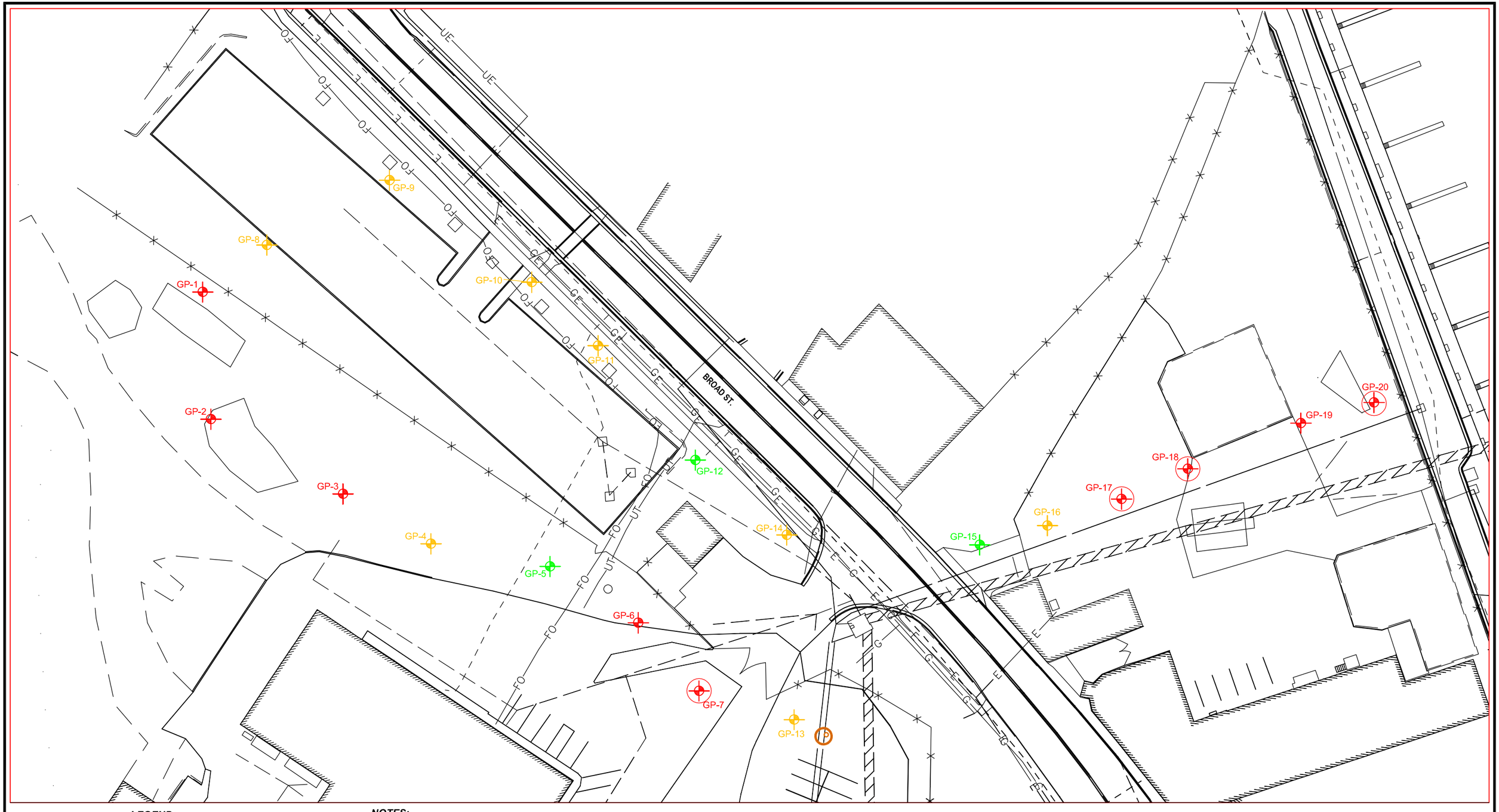
It is possible that subsurface work could uncover additional/unknown contaminated soil or groundwater areas. One or more site workers shall be trained in accordance with Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) standard at the supervisor level. This person shall make decisions about the need for additional characterization and/or necessary PPE adjustments.

This notice is intended for construction and utility workers associated with the City of St. Joseph CSO Compliance project subsurface utility installation activities which might involve the handling of contaminated subsurface soil and/or groundwater. This notice does not apply to any other health and safety requirements established by other applicable agencies. For more information or to review copies of the environmental reports, you may contact:

Mark C. Seaman, CPG
Point Blue, LLC
(269) 934-3737

Shawn Keough, PE
Wade Trim
(313) 363-1434

Tim Zebell, City Engineer
City of St. Joseph
(269) 985-0039



N
W E
S
0 25 50
SCALE: 1" = 50'

LEGEND:

- ALL PARAMETERS <GRCC/GNRCC
- VOCS/PNAS/METALS >GRCC/GNRCC
- SELENIUM >GRCC/GNRCC
- METALS>GRCC/GNRCC, VOCS PRESENT BUT <GRCC/GNRCC

NOTES:

- Ingestion of soil and groundwater should be avoided.
- No direct contact hazards present for utility workers. Typical construction personal protective equipment (PPE) should be worn.
- No inhalation hazards present for utility workers (particulate or vapor).
- Soil excavated can be repurposed on-site in the same general area it was removed if suitable and approved by the Engineer.
- Excess soil which cannot be repurposed should be disposed of at a Type II landfill designed for such material. Soils from these areas have been waste characterized (data available upon request).
- Excess soil which will be stockpiled for an extended period shall be placed on an impervious surface or plastic sheeting and appropriately covered with plastic sheeting.
- One or more workers on-site shall be trained in accordance with OSHA HAZWOPER standard.
- Dewatering fluids will require proper management. Discharge to the St. Joseph/Benton Harbor WWTP sanitary sewer is recommended for all dewatering fluids with the fluids generated.
- Minimize the generation of dust.

pointblue

ENVIRONMENTAL SITE PLAN

CITY OF ST. JOSEPH
CSO COMPLIANCE PROJECT
ST. JOSEPH, MICHIGAN

REVISION		*DATE: 1/16/2024*	*APPROVED: MCS*
DATE:	*BY:*	*DRAWN: MAT*	*JOB No: D5090*